SEQUENCE LISTING

<110> CureVac GmbH

<120> Composition and Vaccine for Treating Lung Cancer

<130> CU01P148WO1

<160> 83

<170> PatentIn version 3.5

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uccagcuaca aggacgcccu gaaggacgug gaggagcggg cccaggccau caucgacacc 3360
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<211> 1326
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C2 (GC)-muag-A64-C30

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uccaccagcu ccagccugau ccucgggggc cccgaggagg aggaggugcc cuccgggguc 240

aucccgaacc ugaccgagag caucccccucc agccccccgc agggcccgcc ccaggggccc 300

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uccuucaccu acacccugga cgagaaggug gccgagcugg uggaguuccu ccugcugaag 480

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gacuacuucc ccgugauccu gaagcgcgcc cgggaguuca uggagcugcu cuucggccug 600

gcgcugaucg aggucgggcc cgaccacuuc ugcguguucg ccaacacggu gggccucacc 660

gacgagggga gcgacgacga gggcaugccg gagaacuccc ugcugaucau cauccucagc 720

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uacuacgagu uccugugggg cccccgggcc cacagcgagu ccaucaagaa gaaggcccuc 960

gaguuccugg ccaagcugaa caacaccgug cccagcagcu uccccuccug guacaaggac 1020

gcccucaagg acgucgagga gcgcgugcag gccacgaucg acaccgcgga cgacgccacc 1080

gugauggcca gcgagucccu gagcgucaug uccagcaacg uguccuucag cgagugacca 1140

cuaguuauaa gacugacuag cccgaugggc cucccaacgg gcccuccucc ccuccuugca 1200

ccgagauuaa uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260

aaaaaaaaaa aaaaauauuc cccccccccc cccccccccc cccccccccu cuagacaauu 1320

ggaauu 1326

<210> 14
<211> 1339
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C2 (GC)-muag-A64-C30-histoneSL

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gaggaggagg ccagcuccgc gagcuccacg cucuaccugg uguucagccc cuccagcuuc 180

uccaccagcu ccagccugau ccucgggggc cccgaggagg aggaggugcc cuccgggguc 240

aucccgaacc ugaccgagag caucccccucc agccccccgc agggcccgcc ccaggggccc 300

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gaguuccugg ccaagcugaa caacaccgug cccagcagcu uccccuccug guacaaggac 1020

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gugauggcca gcgagucccu gagcgucaug uccagcaacg uguccuucag cgagugacca 1140

cuaguuauaa gacugacuag cccgaugggc cucccaacgg gcccuccucc ccuccuugca 1200

ccgagauuaa uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260

aaaaaaaaaa aaaaaugcau ccccccccccc ccccccccccc ccccccccccc caaaggcucu 1320

uuucagagcc accagaauu 1339

<210> 15
<211> 1122
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C2 CDS wild type

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uccgccucuu ccacuuugua cuuaguauuu ucccccucuu cuuucuccac auccucuucu 180

cugauucuug gugguccuga ggaggaggag gugcccucug gugugauacc aaaucuuacc 240

gagagcauuc ccaguagucc uccacagggu ccuccacagg guccuuccca gaguccucug 300

agcuccugcu gcuccucuuu uucauggagc ucauucagug aggaguccag cagccagaaa 360

ggggaggaua caggcaccug ucagggccug ccagacagug aguccucuuu cacauauaca 420

cuagaugaaa agguggccga guuaguggag uuccugcucc ucaaauacga agcagaggag 480

ccuguaacag aggcagagau gcugaugauu gucaucaagu acaaagauua cuuuccugug 540

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ugggguccaa gagcccauuc agaaagcauc aagaagaaag uacuagaguu uuuagccaag 960

cugaacaaca cuguuccuag uuccuuucca uccugguaca aggaugcuuu gaaagaugug 1020

gaagagagag uccaggccac aauugauacc gcagaugaug ccacugucau ggccagugaa 1080

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<210> 16
<211> 1860
<212> RNA
<213> Artificial Sequence

<220>
<223> MUC1 5 VNTR (GC)-muag-A64-C30

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gagacgagcg ccacccagcg guccagcgug cccuccagca ccgagaagaa cgcggucucc 180

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caggacguga cccucgcccc ggccaccgag cccgccagcg gguccgccgc gacgugggggc 300

caggacguca ccagcgugcc cgugacccgc cccgcccugg ggagcaccac gccgcccgcc 360

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aucuuccccg cccgggacac guaccacccg augagcgagu acccgaccua ccacacccac 1560

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aacggcggca gcucccugag cuacaccaac ccggcggugg ccgccgccuc cgccaaccug 1680

ugaccacuag uuauaagacu gacuagcccg augggccucc caacgggccc uccucccccuc 1740

cuugcaccga gauuaauaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1800

aaaaaaaaaa aaaaaaaaaa auauuccccc ccccccccccc ccccccccccc cccccucuag 1860

<210> 17
<211> 1885
<212> RNA
<213> Artificial Sequence

<220>
<223> MUC1 5 VNTR (GC)-muag-A64-C30-histoneSL

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cuugcaccga gauuaauaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1800

aaaaaaaaaa aaaaaaaaaa augcaucccc ccccccccccc ccccccccccc ccccccccaaa 1860

ggcucuuuuc agagccacca gaauu 1885

<210> 18
<211> 1668
<212> RNA
<213> Artificial Sequence

<220>
<223> Muc1-5 VNTR CDS wild type

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cagagaaguu cagugcccag cucuacugag aagaaugcug ugaguaugac cagcagcgua 180

cucuccagcc acagccccgg uucaggcucc uccaccacuc agggacagga ugucacucug 240

gccccggcca cggaaccagc uucagguuca gcugccaccu ggggacagga ugucaccucg 300

gucccaguca ccaggccagc ccugggcucc accaccccgc cagcccacga ugucaccuca 360

gccccggaca acaagccagc cccgggcucc accgcccccc cagcccacgg ugucaccucg 420

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gcuaccacaa ccccagccag caagagcacu ccauucucaa uucccagcca ccacucugau 900

acuccuacca cccuugccag ccauagcacc aagacugaug ccaguagcac ucaccauagc 960

ucgguaccuc cucucaccuc cuccaaucac agcacuucuc cccaguuguc uacugggguc 1020

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cccagcaccg acuacuacca agagcugcag agagacauuu cugaaauguu uuugcagauu 1140

uauaaacaag gggguuuucu gggccucucc aauauuaagu ucaggccagg aucuguggug 1200

guacaauuga cucuggccuu ccgagaaggu accaucaaug uccacgacgu ggagacacag 1260

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gauaccuacc auccuaugag cgaguacccc accuaccaca cccaugggcg cuaugugccc 1560

ccuagcagua ccgaucguag ccccuaugag aagguuucug cagguaacgg uggcagcagc 1620

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<210> 19
<211> 1480
<212> RNA
<213> Artificial Sequence

<220>
<223> 5T4 (GC)-muag-A64-C30-HistoneSL

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cuguuccuga ccggcaacca gcucgccguc cugcccgccg gcgccuucgc gcgccggccg 360

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ggcgcguucg agcaccugcc gucccugcgc cagcucgacc ugagccacaa cccccuggcc 480

gaccucuccc ccuucgccuu cagcgggagc aacgccuccg ugagcgcccc cucccccgcug 540

gucgagcuga uccucaacca caucgugccc cccgaggacg agcggcagaa ccgcagcuuc 600

gagggcaugg uggucgcggc ccugcuggcc gggcgggccc uccagggccu gcgccggcug 660

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gagcugaaca gcgccgaccu cgacugcgac ccgauccugc cccccucccu gcagaccagc 1080

uacguguucc ucgggaucgu ccuggcccug aucggcgcca ucuuccuccu ggugcuguac 1140

cucaaccgca agggcaucaa gaaguggaug cacaacaucc gggacgccug ccgcgaccac 1200

auggaggggu accacuaccg guacgagauc aacgcggacc cccgccugac caaccugucc 1260

agcaacuccg acgucugacc acuaguuaua agacugacua gcccgauggg ccucccaacg 1320

ggcccuccuc cccuccuugc accgagauua auaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1380

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaugca ucccccccccc ccccccccccc 1440

ccccccccccc ccaaaggcuc uuuucagagc caccagaauu 1480

<210> 20
<211> 646
<212> RNA
<213> Artificial Sequence

<220>
<223> Survivin (GC)-muag-A64-C30-HistoneSL

<400> 20
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gaccaccgca ucucgaccuu caagaacugg ccguuccugg agggcugcgc gugcaccccg 120

gagcggaugg ccgaggccgg cuucauccac ugccccaccg agaacgagcc ggaccuggcc 180

cagugcuucu ucugcuucaa ggagcuggag ggcugggagc cggacgacga cccgaucgag 240

gagcacaaga agcacagcag cggcugcgcc uuccugagcg ugaagaagca guucgaggag 300

cugacgcucg gggaguuccu gaagcuggac cgggagcggg ccaagaacaa gaucgcgaag 360

gagaccaaca acaagaagaa ggaguucgag gagaccgcca agaaggugcg gcgggccauc 420

gagcagcugg ccgccaugga cugaccacua guuauaagac ugacuagccc gaugggccuc 480

ccaacgggcc cuccucccccu ccuugcaccg agauuaauaa aaaaaaaaaa aaaaaaaaaa 540

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaugcauccc ccccccccccc 600

ccccccccccc ccccccccaa aggcucuuuu cagagccacc agaauu 646

<210> 21
<211> 760
<212> RNA
<213> Artificial Sequence

<220>
<223> NY-ESO-1 (GC)-muag-A64-C30-histone SL

<400> 21
gggagaaagc uuaccaugca ggccgagggc cgcggcaccg gcggcucgac cggcgacgcc 60

gacgggcccg gcggcccggg caucccggac ggcccgggcg ggaacgcggg cggcccgggc 120

gaggccggcg ccaccggcgg gcggggcccg cggggcgccg gcgccgcccg ggcgagcggc 180

cccggcgggg gcgccccgcg gggcccgcac ggcggcgccg ccagcggccu gaacgggugc 240

ugccggugcg gcgcccgcgg cccggagagc cggcuccugg aguucuaccu ggccaugccg 300

uucgcgaccc cgauggaggc cgagcuggcc cggcggagcc uggcccagga cgccccgccg 360

cugcccgugc cgggcgugcu ccugaaggag uucacgguga gcggcaacau ccugaccauc 420

cggcugaccg ccgcggacca ccggcagcug cagcugucga ucagcagcug ccuccagcag 480

cugagccugc ugauguggau cacccagugc uuccugccgg uguuccuggc ccagccgccc 540

agcggccagc gccggugacc acuaguuaua agacugacua gcccgauggg ccucccaacg 600

ggcccuccuc cccuccuugc accgagauua auaaaaaaaa aaaaaaaaaa aaaaaaaaaa 660

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaugca uccccccccc cccccccccc 720

cccccccccc ccaaaggcuc uuuucagagc caccagaauu 760

<210> 22
<211> 1813
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C1 (aa 613-1142) (GC)-muag-A64-C30-histoneSL

<400> 22
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agccccgugu ccaucugcag cuccagcacc cccuccagcc ucccgcagag cuuccccgag 120

uccagccagu ccccccccga gggcccgguc cagagccccc ugcacucccc gcagagcccc 180

ccggagggga ugcacuccca gagcccccug caguccccg agagcgcccc cgagggcgag 240

gacucccuca gcccgcugca gaucccccag uccccgcugg agggggagga cagccucucc 300

agccugcacu ucccccaguc cccgcccgag ugggaggaca gccugagccc ccuccacuuc 360

ccccaguucc cgccccaggg cgaggacuuc caguccagcc ugcagucccc cgugagcauc 420

ugcuccagcu ccacgagccu gucccucccc cagagcuucc cggagucccc ccagagcccg 480

cccgaggggc cggcgcaguc cccccugcag cgccccguga gcuccuucuu cagcuacacc 540

cuggccuccc uccugcagag cucccacgag agcccgcaga gcccgcccga gggccccgcc 600

caguccccgc ugcagagccc cgucuccagc uuccccucca gcaccuccag cucccucagc 660

caguccagcc ccguguccag cuucccgucc agcaccucca gcucccugag caagagcucc 720

cccgagagcc cccugcaguc ccccgugauc agcuucucca gcuccacgag ccucuccccg 780

uucagcgagg aguccagcuc ccccgucgac gaguacacca gcuccagcga cacccugcug 840

gaguccgaca gccucaccga cuccgagagc cugaucgaga gcgagccccu guucaccuac 900

acgcucgacg agaaggugga cgagcuggcc cgguuccugc uccugaagua ccaggugaag 960

cagcccauca ccaaggccga gaugcugacc aacgucaucu cccgcuacac cggcuacuuc 1020

ccggugaucu uccggaaggc gcgcgaguuc aucgagaucc ucuucgggau cagccugcgg 1080

gagguggacc ccgacgacuc cuacgucuuc gugaacacgc uggaccucac cagcgagggc 1140

ugccuguccg acgagcaggg gaugagccag aaccgccugc ucauccugau ccuguccauc 1200

aucuucauca agggcaccua cgccagcgag gaggucaucu gggacgugcu cuccgggauc 1260

ggcgugcggg ccggccgcga gcacuucgcc uucggggagc cccgggagcu gcugaccaag 1320

gucugggugc aggagcacua ccucgaguac cgcgaggugc ccaacagcuc cccgccccgg 1380

uacgaguucc ugugggggccc ccgcgcccac agcgagguca ucaagcggaa ggugguggag 1440

uuccuggcga ugcucaagaa cacggucccc aucaccuucc cguccagcua caaggacgcc 1500

cugaaggacg uggaggagcg ggcccaggcc aucaucgaca ccaccgacga cuccacggcc 1560

accgagagcg cguccagcuc cgugaugagc cccagcuucu ccagcgagug accacuaguu 1620

auaagacuga cuagcccgau gggccucccа acgggcccuc cuccccuccu ugcaccgaga 1680

uuaauaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1740

aaaaaaaaau gcaucccccc ccccccccccc ccccccccccc cccccaaagg cucuuuucag 1800

agccaccaga auu 1813

<210> 23
<211> 1339
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C2 (GC)-muag-A64-C30-histoneSL

<400> 23
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agccccaccu ccguggagcu ggaggacugg gucgacgccc agcacccgac cgacgaggag 120

gaggaggagg ccagcuccgc gagcuccacg cucuaccugg uguucagccc cuccagcuuc 180

uccaccagcu ccagccugau ccucgggggc cccgaggagg aggaggugcc cuccgggguc 240

aucccgaacc ugaccgagag cauccccucc agccccccgc agggcccgcc ccaggggccc 300

ucccagagcc cccuguccag cugcugcagc uccuucagcu gguccagcuu cuccgaggag 360

agcuccagcc agaagggcga ggacaccggc acgugccagg ggcucccgga cuccgagagc 420

uccuucaccu acacccugga cgagaaggug gccgagcugg uggaguuccu ccugcugaag 480

uacgaggccg aggagcccgu caccgaggcc gagaugcuca ugaucgugau caaguacaag 540

gacuacuucc ccgugauccu gaagcgcgcc cgggaguuca uggagcugcu cuucggccug 600

gcgcugaucg aggucgggcc cgaccacuuc ugcguguucg ccaacacggu gggccucacc 660

gacgagggga gcgacgacga gggcaugccg gagaacuccc ugcugaucau cauccucagc 720

gucaucuuca ucaagggcaa cugcgccucc gaggagguga ucugggaggu gcugaacgcc 780

gucggggugu acgcgggccg cgagcacuuc guguacgggg agccccggga gcugcucacc 840

aaggucuggg ugcagggcca cuaccuggag uaccgcgagg ugccgcacag cucccccccg 900

uacuacgagu uccugugggg cccccgggcc cacagcgagu ccaucaagaa gaaggcccuc 960

gaguuccugg ccaagcugaa caacaccgug cccagcagcu uccccuccug guacaaggac 1020

gcccucaagg acgucgagga gcgcgugcag gccacgaucg acaccgcgga cgacgccacc 1080

gugauggcca gcgagucccu gagcgucaug uccagcaacg uguccuucag cgagugacca 1140

cuaguuauaa gacugacuag cccgaugggc cucccaacgg gcccuccucc ccuccuugca 1200

ccgagauuaa uaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1260

aaaaaaaaaa aaaaaugcau cccccccccc cccccccccc cccccccccc caaaggcucu 1320

uuucagagcc accagaauu 1339

<210> 24
<211> 1885
<212> RNA
<213> Artificial Sequence

<220>
<223> MUC1 5 VNTR (GC)-muag-A64-C30-histoneSL

<400> 24
gggagaaagc uuaccaugac ccccggcacc cagagcccgu ucuuccugcu ccugcugcuc 60

acggugcuga ccgucgugac cggguccggc cacgccagcu ccacccccgg gggcgagaag 120

gagacgagcg ccacccagcg guccagcgug cccuccagca ccgagaagaa cgcggucucc 180

augaccagcu ccgugcugag cucccacagc cccggguccg gcagcuccac gacccagggc 240

caggacguga cccucgcccc ggccaccgag cccgccagcg gguccgccgc gacguggggc 300

caggacguca ccagcgugcc cgugacccgc cccgcccugg ggagcaccac gccgcccgcc 360

cacgacguca ccuccgcccc cgacaacaag cccgcgccgg gcagcaccgc ccccccgccc 420

cacgggguga ccuccgcccc cgacacgcgg ccggcccccg gcagcaccgc gccccccgcc 480

cacggcguga ccuccgcccc ggacacccgc cccgcccccg ggagcacggc cccgccggcg 540

cacggcguca ccuccgcccc cgacacccgg cccgcccccg ggagcaccgc cccgcccgcc 600

cacggcguga cguccgcgcc cgacacccgc ccggcccccg gcagcaccgc ccccccgccc 660

cacgggguga ccuccgcccc ggacacgcgg cccgcgcccg gcagcaccgc cccgccggcc 720

cacgggguca ccuccgcgcc cgacaaccgc cccgcccugg ggagcaccgc cccgcccgug 780

cacaacguga ccuccgccag cggcuccgcg agcggguccg ccagcacccu cguccacaac 840

ggcacguccg cccgggccac caccaccccc gccagcaagu ccacgcccuu cagcaucccg 900

ucccaccaca gcgacacccc caccacccug gcgucccaca gcacgaagac cgacgccucc 960

agcacccacc acuccagcgu gcccccgcug accagcucca accacagcac gucccccgcag 1020

cucagcaccg ggguguccuu cuucuuccug agcuuccaca ucuccaaccu gcaguucaac 1080

agcucccucg aggaccccag caccgacuac uaccaggagc ugcagcggga caucuccgag 1140

auguuccugc agaucuacaa gcagggcggc uuccucgggc ugagcaacau caaguuccgc 1200

cccggcuccg ucguggugca gcugacccuc gccuuccggg aggggacgau caacguccac 1260

gacguggaga cccaguucaa ccaguacaag accgaggccg ccagccgcua caaccugacc 1320

aucuccgacg ugagcgucuc cgacgugccc uucccguuca gcgcgcaguc cggcgccggc 1380

gugcccgggu ggggcaucgc ccugcucguc cuggugugcg ugcuggucgc ccucgccauc 1440

guguaccuga ucgcgcuggc cgugugccag ugccggcgca agaacuacgg gcagcucgac 1500

aucuuccccg cccgggacac guaccacccg augagcgagu acccgaccua ccacacccac 1560

ggccgcuacg ucccccccag cuccaccgac cggagccccu acgagaaggu guccgccggg 1620

aacggcggca gcucccugag cuacaccaac ccggcggugg ccgccgccuc cgccaaccug 1680

ugaccacuag uuauaagacu gacuagcccg augggccucc caacgggccc uccucccccuc 1740

cuugcaccga gauuaauaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1800

aaaaaaaaaa aaaaaaaaaa augcaucccc ccccccccccc ccccccccccc ccccccccaaa 1860

ggcucuuuuc agagccacca gaauu 1885

<210> 25
<211> 1596
<212> RNA
<213> Artificial Sequence

<220>
<223> MAGE-C1 (aa 613-1142) CDS GC-optimized

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augcaguccc cgcugcaggg cgaggaguuc cagagcuccc ugcagagccc cguguccauc 60

ugcagcucca gcacccccuc cagccucccg cagagcuucc ccgaguccag ccagucccccc 120

cccgagggcc cgguccagag cccccugcac uccccgcaga gccccccgga ggggaugcac 180

ucccagagcc cccugcaguc ccccgagagc gcccccgagg gcgaggacuc ccucagcccg 240

cugcagaucc cccagucccc gcuggagggg gaggacagcc ucuccagccu gcacuucccc 300

caguccccgc ccgaguggga ggacagccug agcccccucc acuuccccca guucccgccc 360

cagggcgagg acuuccaguc cagccugcag ucccccguga gcaucugcuc cagcuccacg 420

agccuguccc ucccccagag cuucccggag ucccccccaga gcccgcccga ggggccggcg 480

caguccccccc ugcagcgccc cgugagcucc uucuucagcu acacccuggc cucccuccug 540

cagagcuccc acgagagccc gcagagcccg cccgagggcc ccgcccaguc cccgcugcag 600

agccccgugu ccagcuuccc cuccagcacc uccagcuccc ucagccaguc cagccccgug 660

uccagcuucc cguccagcac cuccagcucc cugagcaaga gcucccccga gagcccccug 720

caguccccccg ugaucagcuu cuccagcucc acgagccucu ccccguucag cgaggagucc 780

agcucccccg ucgacgagua caccagcucc agcgacaccc ugcuggaguc cgacagccuc 840

accgacuccg agagccugau cgagagcgag ccccuguuca ccuacacgcu cgacgagaag 900

guggacgagc uggcccgguu ccugcuccug aaguaccagg ugaagcagcc caucaccaag 960

gccgagaugc ugaccaacgu caucucccgc uacaccggcu acuucccggu gaucuuccgg 1020

aaggcgcgcg aguucaucga gauccucuuc gggaucagcc ugcgggaggu ggaccccgac 1080

gacuccuacg ucuucgugaa cacgcuggac cucaccagcg agggcugccu guccgacgag 1140

caggggauga gccagaaccg ccugcucauc cugauccugu ccaucaucuu caucaagggc 1200

accuacgcca gcgaggaggu caucugggac gugcucuccg ggaucggcgu gcgggccggc 1260

cgcgagcacu ucgccuucgg ggagccccgg gagcugcuga ccaaggucug ggugcaggag 1320

cacuaccucg aguaccgcga ggugcccaac agcucccccgc cccgguacga guuccugugg 1380

ggcccccgcg cccacagcga ggucaucaag cggaaggugg uggaguuccu ggcgaugcuc 1440

aagaacacgg uccccaucac cuucccgucc agcuacaagg acgcccugaa ggacguggag 1500

gagcgggccc aggccaucau cgacaccacc gacgacucca cggccaccga gagcgcgucc 1560

agcuccguga ugagccccag cuucuccagc gaguga 1596

<210> 26
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ic)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (3)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (10)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (16)..(16)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 26
ngnnnnnnun nnnncn 16

<210> 27
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIc)

<220>
<221> misc_feature
<222> (1)..(2)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (3)..(6)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(13)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (15)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (21)..(24)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (25)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not.

<400> 27
nnnnnngnnn nnnunnnnnc nnnnnn 26

<210> 28
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Id)

<220>
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<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (3)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (10)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (16)..(16)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 28
ncnnnnnnun nnnngn 16

<210> 29
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IId)

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<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not.

<220>
<221> misc_feature
<222> (3)..(6)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(13)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (15)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (21)..(23)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 29
nnnnnncnnn nnnunnnnng nnnnnn 26

<210> 30
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ie)

<220>
<221> misc_feature
<222> (3)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (10)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 30
dgnnnnnnun nnnnch 16

<210> 31
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIe)

<220>
<221> misc_feature
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<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
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<222> (3)..(5)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(13)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (15)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (22)..(23)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 31
nnnnndgnnn nnnunnnnnc hnnnnn 26

<210> 32
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (If)

<220>
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<220>
<221> misc_feature
<222> (3)..(3)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (7)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (10)..(10)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (12)..(12)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (14)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (16)..(16)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 32
ngnbyynnun vndncn 16

<210> 33
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIf)

<220>
<221> misc_feature
<222> (1)..(2)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (3)..(6)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (12)..(13)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (15)..(15)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (17)..(17)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (19)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (21)..(23)

<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 33
nnnnnngnby ynnunvndnc nnnnnn 26

<210> 34
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ig)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (16)..(16)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 34
nghyyydnuh abrdcn 16

<210> 35
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIg)

<220>
<221> misc_feature
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<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
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<222> (4)..(6)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

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<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(25)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> may be present or not

<400> 35
nnhnnnghyy ydnuhabrdc nnnnnh 26

<210> 36
<211> 16
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ih)

<400> 36
dghycudyuh asrrcc 16

<210> 37
<211> 26
<212> RNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIh)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (2)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(25)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> may be present or not

<400> 37
nhaahdghyc udyuhasrrc cvhbnh 26

<210> 38
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ic)

<400> 38
vgyyyyhhth rvvrcb 16

<210> 39
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ic)

<400> 39
sgyyyttytm arrrcs 16

<210> 40
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ic)

<400> 40
sgyyctttm agrrcs 16

<210> 41
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ie)

<220>
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<222> (3)..(5)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (7)..(8)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (12)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 41
dgnnnbnnth vnnnch 16

<210> 42
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ie)

<220>
<221> misc_feature
<222> (3)..(5)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (13)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 42
rgnnnyhbth rdnncy 16

<210> 43
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ie)

<220>
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<222> (3)..(3)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (14)..(14)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<400> 43
rgndbyhyth rdhncy 16

<210> 44
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (If)

<400> 44
vgyyytyhth rvrrcb 16

<210> 45
<211> 16
<212> DNA
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<220>
<223> Sequence according to formula (If)

<400> 45
sgyyycttytm agrrcs 16

<210> 46
<211> 16
<212> DNA
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<220>

<223> Sequence according to formula (If)

<400> 46
sgyyctttm agrrcs 16

<210> 47
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ig)

<400> 47
ggyycttyth agrrcc 16

<210> 48
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ig)

<400> 48
ggcycttytm agrgcc 16

<210> 49
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ig)

<400> 49
ggctctttm agrgcc 16

<210> 50
<211> 16
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ih)

<400> 50
dghyctdyth asrrcc 16

<210> 51
<211> 16
<212> DNA
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<220>
<223> Sequence according to formula (Ih)

<400> 51
ggcycttth agrgcc 16

<210> 52
<211> 16

<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (Ih)

<400> 52
ggcyctttm agrgcc 16

<210> 53
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIc)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 53
hhhhvvgyyy yhhthrvvrc bvhhnn 26

<210> 54
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIc)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(26)
<223> may be present or not

<400> 54
mhmhmsgyyy ttytmarrrc smchhh 26

<210> 55
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIc)

<220>
<221> misc_feature

<222> (1)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(26)
<223> may be present or not

<400> 55
mmmmmsgyyc ttttmagrrc sachmh 26

<210> 56
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIe)

<220>
<221> misc_feature
<222> (1)..(2)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (3)..(5)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(10)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
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<222> (12)..(13)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
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<222> (17)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
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<222> (22)..(22)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 56
nnnnndgnnn bnnthvnnnc hnhnnn 26

<210> 57
<211> 26
<212> DNA
<213> Artificial Sequence

<220>

<223> Sequence according to formula (IIe)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (2)..(2)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (5)..(5)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (8)..(10)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (18)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(24)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 57
nnhhnrgnnn yhbthrdnnc ydhhnn 26

<210> 58
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIe)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
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<222> (2)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (8)..(8)

<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
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<222> (19)..(19)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof

<220>
<221> misc_feature
<222> (24)..(26)
<223> may be present or not

<400> 58
nhhhvrgndb yhythrdhnc yrhhhh 26

<210> 59
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIf)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
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<222> (25)..(25)
<223> may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<400> 59
hhmhmvgyyy tyhthrvrrc bvmhhn 26

<210> 60
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIf)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(26)
<223> may be present or not

<400> 60
mmmmmsgyyc ttytmagrrc smchhh 26

<210> 61
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
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<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
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<222> (25)..(26)
<223> may be present or not

<400> 61
mmmmmsgyyc ttttmagrrc sachmh 26

<210> 62
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIg)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (24)..(25)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> may be present or not

<400> 62
hhmamggyyc ttythagrrc cvhnnm 26

<210> 63
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIg)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
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<222> (25)..(26)
<223> may be present or not

<400> 63
hhaamggcyc ttytmagrgc cvchhm 26

<210> 64
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIg)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
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<222> (24)..(26)
<223> may be present or not

<400> 64
mmaamggctc ttttmagrgc cmcymm 26

<210> 65
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIh)

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (2)..(2)
<223> may be present or not

<220>
<221> misc_feature
<222> (24)..(24)
<223> may be present or not

<220>
<221> misc_feature
<222> (25)..(25)
<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> may be present or not

<400> 65
nhaahdghyc tdythasrrc cvhbnh 26

<210> 66
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
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<220>
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<222> (1)..(2)
<223> may be present or not

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<223> may be present or not

<220>
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<223> n is a, u, t, g, and c, or a nucleotide analogue thereof; may be present or not

<220>
<221> misc_feature
<222> (26)..(26)
<223> may be present or not

<400> 66
hhaamggcyc tttthagrgc cvmynm 26

<210> 67
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Sequence according to formula (IIh)

<220>
<221> misc_feature
<222> (1)..(2)
<223> may be present or not

<220>
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<222> (24)..(26)
<223> may be present or not

<400> 67
hmaaaggcyc ttttmagrgc crmyhm 26

<210> 68
<211> 13
<212> RNA
<213> Artificial Sequence

<220>
<223> Kozak sequence

<400> 68

gccgccacca ugg 13

<210> 69
<211> 15
<212> RNA
<213> Artificial Sequence

<220>
<223> general formula of a 3-UTR stabilizing sequence

<220>
<221> misc_feature
<222> (1)..(1)
<223> n is c or u

<220>
<221> repeat_unit
<222> (5)..(5)
<223> n is a, u, t, g, or c; may be present or not

<220>
<221> misc_feature
<222> (5)..(5)
<223> n is a, u, t, g, or c

<220>
<221> misc_feature
<222> (9)..(9)
<223> n is a, or u

<220>
<221> repeat_unit
<222> (10)..(10)
<223> n is c or u, may be present or not

<220>
<221> misc_feature
<222> (10)..(10)
<223> n is c or u

<220>
<221> misc_feature
<222> (13)..(13)
<223> n is c or u

<400> 69
nccancccnn ucncc 15

<210> 70
<211> 44
<212> RNA
<213> Artificial Sequence

<220>
<223> 3'-UTR of an alpha-globin gene (muag)

<400> 70
gcccgauggg ccucccaacg ggcccuccuc cccuccuugc accg 44

<210> 71
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Specific histone stem-loop sequence

<400> 71
caaaggctct tttcagagcc acca 24

<210> 72
<211> 24
<212> RNA
<213> Artificial Sequence

<220>
<223> Specific histone stem-loop sequence

<400> 72
caaaggcucu uuucagagcc acca 24

<210> 73
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> MUC1-derived peptide

<400> 73

Ser Ala Pro Asp Asn Arg Pro Ala Leu
1 5

<210> 74
<211> 8
<212> PRT
<213> Artificial Sequence

<220>
<223> Connexin-derived peptide

<400> 74

Phe Glu Gln Asn Thr Ala Gln Pro
1 5

<210> 75
<211> 420
<212> PRT
<213> Artificial Sequence

<220>
<223> 5T4 Protein NP_001159864.1

<400> 75

Met Pro Gly Gly Cys Ser Arg Gly Pro Ala Ala Gly Asp Gly Arg Leu
1 5 10 15

Arg Leu Ala Arg Leu Ala Leu Val Leu Leu Gly Trp Val Ser Ser Ser
20 25 30

Ser Pro Thr Ser Ser Ala Ser Ser Phe Ser Ser Ser Ala Pro Phe Leu
35 40 45

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Ala Ser Ala Val Ser Ala Gln Pro Pro Leu Pro Asp Gln Cys Pro Ala
    50                  55                  60

Leu Cys Glu Cys Ser Glu Ala Ala Arg Thr Val Lys Cys Val Asn Arg
65                  70                  75                  80

Asn Leu Thr Glu Val Pro Thr Asp Leu Pro Ala Tyr Val Arg Asn Leu
                85                  90                  95

Phe Leu Thr Gly Asn Gln Leu Ala Val Leu Pro Ala Gly Ala Phe Ala
            100                 105                 110

Arg Arg Pro Pro Leu Ala Glu Leu Ala Ala Leu Asn Leu Ser Gly Ser
        115                 120                 125

Arg Leu Asp Glu Val Arg Ala Gly Ala Phe Glu His Leu Pro Ser Leu
    130                 135                 140

Arg Gln Leu Asp Leu Ser His Asn Pro Leu Ala Asp Leu Ser Pro Phe
145                 150                 155                 160

Ala Phe Ser Gly Ser Asn Ala Ser Val Ser Ala Pro Ser Pro Leu Val
                165                 170                 175

Glu Leu Ile Leu Asn His Ile Val Pro Pro Glu Asp Glu Arg Gln Asn
            180                 185                 190

Arg Ser Phe Glu Gly Met Val Val Ala Ala Leu Leu Ala Gly Arg Ala
        195                 200                 205

Leu Gln Gly Leu Arg Arg Leu Glu Leu Ala Ser Asn His Phe Leu Tyr
    210                 215                 220

Leu Pro Arg Asp Val Leu Ala Gln Leu Pro Ser Leu Arg His Leu Asp
225                 230                 235                 240

Leu Ser Asn Asn Ser Leu Val Ser Leu Thr Tyr Val Ser Phe Arg Asn
                245                 250                 255

Leu Thr His Leu Glu Ser Leu His Leu Glu Asp Asn Ala Leu Lys Val
            260                 265                 270

Leu His Asn Gly Thr Leu Ala Glu Leu Gln Gly Leu Pro His Ile Arg
        275                 280                 285

Val Phe Leu Asp Asn Asn Pro Trp Val Cys Asp Cys His Met Ala Asp
    290                 295                 300

Met Val Thr Trp Leu Lys Glu Thr Glu Val Val Gln Gly Lys Asp Arg
305                 310                 315                 320
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Leu Thr Cys Ala Tyr Pro Glu Lys Met Arg Asn Arg Val Leu Leu Glu
                325                 330                 335

Leu Asn Ser Ala Asp Leu Asp Cys Asp Pro Ile Leu Pro Pro Ser Leu
            340                 345                 350

Gln Thr Ser Tyr Val Phe Leu Gly Ile Val Leu Ala Leu Ile Gly Ala
        355                 360                 365

Ile Phe Leu Leu Val Leu Tyr Leu Asn Arg Lys Gly Ile Lys Lys Trp
    370                 375                 380

Met His Asn Ile Arg Asp Ala Cys Arg Asp His Met Glu Gly Tyr His
385                 390                 395                 400

Tyr Arg Tyr Glu Ile Asn Ala Asp Pro Arg Leu Thr Asn Leu Ser Ser
                405                 410                 415

Asn Ser Asp Val
            420
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<210> 76
<211> 142
<212> PRT
<213> Artificial Sequence

<220>
<223> Survivin (BIRC5) Protein O15392

<400> 76

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Met Gly Ala Pro Thr Leu Pro Pro Ala Trp Gln Pro Phe Leu Lys Asp
1               5                   10                  15

His Arg Ile Ser Thr Phe Lys Asn Trp Pro Phe Leu Glu Gly Cys Ala
            20                  25                  30

Cys Thr Pro Glu Arg Met Ala Glu Ala Gly Phe Ile His Cys Pro Thr
        35                  40                  45

Glu Asn Glu Pro Asp Leu Ala Gln Cys Phe Phe Cys Phe Lys Glu Leu
    50                  55                  60

Glu Gly Trp Glu Pro Asp Asp Asp Pro Ile Glu Glu His Lys Lys His
65                  70                  75                  80

Ser Ser Gly Cys Ala Phe Leu Ser Val Lys Lys Gln Phe Glu Glu Leu
                85                  90                  95

Thr Leu Gly Glu Phe Leu Lys Leu Asp Arg Glu Arg Ala Lys Asn Lys
            100                 105                 110

Ile Ala Lys Glu Thr Asn Asn Lys Lys Lys Glu Phe Glu Glu Thr Ala
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115 120 125

Lys Lys Val Arg Arg Ala Ile Glu Gln Leu Ala Ala Met Asp
130 135 140

<210> 77
<211> 142
<212> PRT
<213> Artificial Sequence

<220>
<223> Survivin (BIRC5) Protein NP_001159.2

<400> 77

Met Gly Ala Pro Thr Leu Pro Pro Ala Trp Gln Pro Phe Leu Lys Asp
1 5 10 15

His Arg Ile Ser Thr Phe Lys Asn Trp Pro Phe Leu Glu Gly Cys Ala
20 25 30

Cys Thr Pro Glu Arg Met Ala Glu Ala Gly Phe Ile His Cys Pro Thr
35 40 45

Glu Asn Glu Pro Asp Leu Ala Gln Cys Phe Phe Cys Phe Lys Glu Leu
50 55 60

Glu Gly Trp Glu Pro Asp Asp Asp Pro Ile Glu Glu His Lys Lys His
65 70 75 80

Ser Ser Gly Cys Ala Phe Leu Ser Val Lys Lys Gln Phe Glu Glu Leu
85 90 95

Thr Leu Gly Glu Phe Leu Lys Leu Asp Arg Glu Arg Ala Lys Asn Lys
100 105 110

Ile Ala Lys Glu Thr Asn Asn Lys Lys Lys Glu Phe Glu Glu Thr Ala
115 120 125

Glu Lys Val Arg Arg Ala Ile Glu Gln Leu Ala Ala Met Asp
130 135 140

<210> 78
<211> 180
<212> PRT
<213> Artificial Sequence

<220>
<223> NY-ESO-1 Protein NP_001318.1

<400> 78

Met Gln Ala Glu Gly Arg Gly Thr Gly Gly Ser Thr Gly Asp Ala Asp
1 5 10 15

Gly Pro Gly Gly Pro Gly Ile Pro Asp Gly Pro Gly Gly Asn Ala Gly

20 25 30

Gly Pro Gly Glu Ala Gly Ala Thr Gly Gly Arg Gly Pro Arg Gly Ala
35 40 45

Gly Ala Ala Arg Ala Ser Gly Pro Gly Gly Gly Ala Pro Arg Gly Pro
50 55 60

His Gly Gly Ala Ala Ser Gly Leu Asn Gly Cys Cys Arg Cys Gly Ala
65 70 75 80

Arg Gly Pro Glu Ser Arg Leu Leu Glu Phe Tyr Leu Ala Met Pro Phe
85 90 95

Ala Thr Pro Met Glu Ala Glu Leu Ala Arg Arg Ser Leu Ala Gln Asp
100 105 110

Ala Pro Pro Leu Pro Val Pro Gly Val Leu Leu Lys Glu Phe Thr Val
115 120 125

Ser Gly Asn Ile Leu Thr Ile Arg Leu Thr Ala Ala Asp His Arg Gln
130 135 140

Leu Gln Leu Ser Ile Ser Ser Cys Leu Gln Gln Leu Ser Leu Leu Met
145 150 155 160

Trp Ile Thr Gln Cys Phe Leu Pro Val Phe Leu Ala Gln Pro Pro Ser
165 170 175

Gly Gln Arg Arg
180

<210> 79
<211> 1142
<212> PRT
<213> Artificial Sequence

<220>
<223> MAGE-C1 Protein NP_005453.2

<400> 79

Met Gly Asp Lys Asp Met Pro Thr Ala Gly Met Pro Ser Leu Leu Gln
1 5 10 15

Ser Ser Ser Glu Ser Pro Gln Ser Cys Pro Glu Gly Glu Asp Ser Gln
20 25 30

Ser Pro Leu Gln Ile Pro Gln Ser Ser Pro Glu Ser Asp Asp Thr Leu
35 40 45

Tyr Pro Leu Gln Ser Pro Gln Ser Arg Ser Glu Gly Glu Asp Ser Ser
50 55 60

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Asp Pro Leu Gln Arg Pro Pro Glu Gly Lys Asp Ser Gln Ser Pro Leu
65                  70                  75                  80

Gln Ile Pro Gln Ser Ser Pro Glu Gly Asp Asp Thr Gln Ser Pro Leu
                85                  90                  95

Gln Asn Ser Gln Ser Ser Pro Glu Gly Lys Asp Ser Leu Ser Pro Leu
            100                 105                 110

Glu Ile Ser Gln Ser Pro Pro Glu Gly Glu Asp Val Gln Ser Pro Leu
        115                 120                 125

Gln Asn Pro Ala Ser Ser Phe Phe Ser Ser Ala Leu Leu Ser Ile Phe
    130                 135                 140

Gln Ser Ser Pro Glu Ser Thr Gln Ser Pro Phe Glu Gly Phe Pro Gln
145                 150                 155                 160

Ser Val Leu Gln Ile Pro Val Ser Ala Ala Ser Ser Ser Thr Leu Val
                165                 170                 175

Ser Ile Phe Gln Ser Ser Pro Glu Ser Thr Gln Ser Pro Phe Glu Gly
            180                 185                 190

Phe Pro Gln Ser Pro Leu Gln Ile Pro Val Ser Arg Ser Phe Ser Ser
        195                 200                 205

Thr Leu Leu Ser Ile Phe Gln Ser Ser Pro Glu Arg Thr Gln Ser Thr
    210                 215                 220

Phe Glu Gly Phe Ala Gln Ser Pro Leu Gln Ile Pro Val Ser Pro Ser
225                 230                 235                 240

Ser Ser Ser Thr Leu Leu Ser Leu Phe Gln Ser Phe Ser Glu Arg Thr
                245                 250                 255

Gln Ser Thr Phe Glu Gly Phe Ala Gln Ser Ser Leu Gln Ile Pro Val
            260                 265                 270

Ser Pro Ser Phe Ser Ser Thr Leu Val Ser Leu Phe Gln Ser Ser Pro
        275                 280                 285

Glu Arg Thr Gln Ser Thr Phe Glu Gly Phe Pro Gln Ser Pro Leu Gln
    290                 295                 300

Ile Pro Val Ser Ser Ser Ser Ser Ser Thr Leu Leu Ser Leu Phe Gln
305                 310                 315                 320

Ser Ser Pro Glu Arg Thr His Ser Thr Phe Glu Gly Phe Pro Gln Ser
                325                 330                 335
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Leu Leu Gln Ile Pro Met Thr Ser Ser Phe Ser Ser Thr Leu Leu Ser
            340                 345                 350

Ile Phe Gln Ser Ser Pro Glu Ser Ala Gln Ser Thr Phe Glu Gly Phe
        355                 360                 365

Pro Gln Ser Pro Leu Gln Ile Pro Gly Ser Pro Ser Phe Ser Ser Thr
    370                 375                 380

Leu Leu Ser Leu Phe Gln Ser Ser Pro Glu Arg Thr His Ser Thr Phe
385                 390                 395                 400

Glu Gly Phe Pro Gln Ser Pro Leu Gln Ile Pro Met Thr Ser Ser Phe
                405                 410                 415

Ser Ser Thr Leu Leu Ser Ile Leu Gln Ser Ser Pro Glu Ser Ala Gln
            420                 425                 430

Ser Ala Phe Glu Gly Phe Pro Gln Ser Pro Leu Gln Ile Pro Val Ser
        435                 440                 445

Ser Ser Phe Ser Tyr Thr Leu Leu Ser Leu Phe Gln Ser Ser Pro Glu
    450                 455                 460

Arg Thr His Ser Thr Phe Glu Gly Phe Pro Gln Ser Pro Leu Gln Ile
465                 470                 475                 480

Pro Val Ser Ser Ser Ser Ser Ser Ser Thr Leu Leu Ser Leu Phe Gln
                485                 490                 495

Ser Ser Pro Glu Cys Thr Gln Ser Thr Phe Glu Gly Phe Pro Gln Ser
            500                 505                 510

Pro Leu Gln Ile Pro Gln Ser Pro Pro Glu Gly Glu Asn Thr His Ser
        515                 520                 525

Pro Leu Gln Ile Val Pro Ser Leu Pro Glu Trp Glu Asp Ser Leu Ser
    530                 535                 540

Pro His Tyr Phe Pro Gln Ser Pro Pro Gln Gly Glu Asp Ser Leu Ser
545                 550                 555                 560

Pro His Tyr Phe Pro Gln Ser Pro Pro Gln Gly Glu Asp Ser Leu Ser
                565                 570                 575

Pro His Tyr Phe Pro Gln Ser Pro Gln Gly Glu Asp Ser Leu Ser Pro
            580                 585                 590

His Tyr Phe Pro Gln Ser Pro Pro Gln Gly Glu Asp Ser Met Ser Pro
        595                 600                 605
```

Leu Tyr Phe Pro Gln Ser Pro Leu Gln Gly Glu Glu Phe Gln Ser Ser
610 615 620

Leu Gln Ser Pro Val Ser Ile Cys Ser Ser Ser Thr Pro Ser Ser Leu
625 630 635 640

Pro Gln Ser Phe Pro Glu Ser Ser Gln Ser Pro Pro Glu Gly Pro Val
645 650 655

Gln Ser Pro Leu His Ser Pro Gln Ser Pro Pro Glu Gly Met His Ser
660 665 670

Gln Ser Pro Leu Gln Ser Pro Glu Ser Ala Pro Glu Gly Glu Asp Ser
675 680 685

Leu Ser Pro Leu Gln Ile Pro Gln Ser Pro Leu Glu Gly Glu Asp Ser
690 695 700

Leu Ser Ser Leu His Phe Pro Gln Ser Pro Pro Glu Trp Glu Asp Ser
705 710 715 720

Leu Ser Pro Leu His Phe Pro Gln Phe Pro Pro Gln Gly Glu Asp Phe
725 730 735

Gln Ser Ser Leu Gln Ser Pro Val Ser Ile Cys Ser Ser Ser Thr Ser
740 745 750

Leu Ser Leu Pro Gln Ser Phe Pro Glu Ser Pro Gln Ser Pro Pro Glu
755 760 765

Gly Pro Ala Gln Ser Pro Leu Gln Arg Pro Val Ser Ser Phe Phe Ser
770 775 780

Tyr Thr Leu Ala Ser Leu Leu Gln Ser Ser His Glu Ser Pro Gln Ser
785 790 795 800

Pro Pro Glu Gly Pro Ala Gln Ser Pro Leu Gln Ser Pro Val Ser Ser
805 810 815

Phe Pro Ser Ser Thr Ser Ser Ser Leu Ser Gln Ser Ser Pro Val Ser
820 825 830

Ser Phe Pro Ser Ser Thr Ser Ser Ser Leu Ser Lys Ser Ser Pro Glu
835 840 845

Ser Pro Leu Gln Ser Pro Val Ile Ser Phe Ser Ser Ser Thr Ser Leu
850 855 860

Ser Pro Phe Ser Glu Glu Ser Ser Ser Pro Val Asp Glu Tyr Thr Ser
865 870 875 880

```
Ser Ser Asp Thr Leu Leu Glu Ser Asp Ser Leu Thr Asp Ser Glu Ser
                885                 890                 895

Leu Ile Glu Ser Glu Pro Leu Phe Thr Tyr Thr Leu Asp Glu Lys Val
            900                 905                 910

Asp Glu Leu Ala Arg Phe Leu Leu Leu Lys Tyr Gln Val Lys Gln Pro
        915                 920                 925

Ile Thr Lys Ala Glu Met Leu Thr Asn Val Ile Ser Arg Tyr Thr Gly
    930                 935                 940

Tyr Phe Pro Val Ile Phe Arg Lys Ala Arg Glu Phe Ile Glu Ile Leu
945                 950                 955                 960

Phe Gly Ile Ser Leu Arg Glu Val Asp Pro Asp Asp Ser Tyr Val Phe
                965                 970                 975

Val Asn Thr Leu Asp Leu Thr Ser Glu Gly Cys Leu Ser Asp Glu Gln
            980                 985                 990

Gly Met Ser Gln Asn Arg Leu Leu  Ile Leu Ile Leu Ser  Ile Ile Phe
        995                 1000                1005

Ile Lys  Gly Thr Tyr Ala Ser  Glu Glu Val Ile Trp  Asp Val Leu
    1010                1015                1020

Ser Gly  Ile Gly Val Arg Ala  Gly Arg Glu His Phe  Ala Phe Gly
    1025                1030                1035

Glu Pro  Arg Glu Leu Leu Thr  Lys Val Trp Val Gln  Glu His Tyr
    1040                1045                1050

Leu Glu  Tyr Arg Glu Val Pro  Asn Ser Ser Pro Pro  Arg Tyr Glu
    1055                1060                1065

Phe Leu  Trp Gly Pro Arg Ala  His Ser Glu Val Ile  Lys Arg Lys
    1070                1075                1080

Val Val  Glu Phe Leu Ala Met  Leu Lys Asn Thr Val  Pro Ile Thr
    1085                1090                1095

Phe Pro  Ser Ser Tyr Lys Asp  Ala Leu Lys Asp Val  Glu Glu Arg
    1100                1105                1110

Ala Gln  Ala Ile Ile Asp Thr  Thr Asp Asp Ser Thr  Ala Thr Glu
    1115                1120                1125

Ser Ala  Ser Ser Ser Val Met  Ser Pro Ser Phe Ser  Ser Glu
    1130                1135                1140
```

<210> 80
<211> 373
<212> PRT
<213> Artificial Sequence

<220>
<223> MAGE-C2 Protein NP_057333.1

<400> 80

Met Pro Pro Val Pro Gly Val Pro Phe Arg Asn Val Asp Asn Asp Ser
1 5 10 15

Pro Thr Ser Val Glu Leu Glu Asp Trp Val Asp Ala Gln His Pro Thr
20 25 30

Asp Glu Glu Glu Glu Glu Ala Ser Ser Ala Ser Ser Thr Leu Tyr Leu
35 40 45

Val Phe Ser Pro Ser Ser Phe Ser Thr Ser Ser Ser Leu Ile Leu Gly
50 55 60

Gly Pro Glu Glu Glu Glu Val Pro Ser Gly Val Ile Pro Asn Leu Thr
65 70 75 80

Glu Ser Ile Pro Ser Ser Pro Pro Gln Gly Pro Pro Gln Gly Pro Ser
85 90 95

Gln Ser Pro Leu Ser Ser Cys Cys Ser Ser Phe Ser Trp Ser Ser Phe
100 105 110

Ser Glu Glu Ser Ser Ser Gln Lys Gly Glu Asp Thr Gly Thr Cys Gln
115 120 125

Gly Leu Pro Asp Ser Glu Ser Ser Phe Thr Tyr Thr Leu Asp Glu Lys
130 135 140

Val Ala Glu Leu Val Glu Phe Leu Leu Leu Lys Tyr Glu Ala Glu Glu
145 150 155 160

Pro Val Thr Glu Ala Glu Met Leu Met Ile Val Ile Lys Tyr Lys Asp
165 170 175

Tyr Phe Pro Val Ile Leu Lys Arg Ala Arg Glu Phe Met Glu Leu Leu
180 185 190

Phe Gly Leu Ala Leu Ile Glu Val Gly Pro Asp His Phe Cys Val Phe
195 200 205

Ala Asn Thr Val Gly Leu Thr Asp Glu Gly Ser Asp Asp Glu Gly Met
210 215 220

Pro Glu Asn Ser Leu Leu Ile Ile Ile Leu Ser Val Ile Phe Ile Lys

225 230 235 240

Gly Asn Cys Ala Ser Glu Glu Val Ile Trp Glu Val Leu Asn Ala Val
245 250 255

Gly Val Tyr Ala Gly Arg Glu His Phe Val Tyr Gly Glu Pro Arg Glu
260 265 270

Leu Leu Thr Lys Val Trp Val Gln Gly His Tyr Leu Glu Tyr Arg Glu
275 280 285

Val Pro His Ser Ser Pro Pro Tyr Tyr Glu Phe Leu Trp Gly Pro Arg
290 295 300

Ala His Ser Glu Ser Ile Lys Lys Lys Val Leu Glu Phe Leu Ala Lys
305 310 315 320

Leu Asn Asn Thr Val Pro Ser Ser Phe Pro Ser Trp Tyr Lys Asp Ala
325 330 335

Leu Lys Asp Val Glu Glu Arg Val Gln Ala Thr Ile Asp Thr Ala Asp
340 345 350

Asp Ala Thr Val Met Ala Ser Glu Ser Leu Ser Val Met Ser Ser Asn
355 360 365

Val Ser Phe Ser Glu
370

<210> 81
<211> 1255
<212> PRT
<213> Artificial Sequence

<220>
<223> MUC1 Protein J05582.1

<400> 81

Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Leu Thr
1 5 10 15

Val Leu Thr Val Val Thr Gly Ser Gly His Ala Ser Ser Thr Pro Gly
20 25 30

Gly Glu Lys Glu Thr Ser Ala Thr Gln Arg Ser Ser Val Pro Ser Ser
35 40 45

Thr Glu Lys Asn Ala Val Ser Met Thr Ser Ser Val Leu Ser Ser His
50 55 60

Ser Pro Gly Ser Gly Ser Ser Thr Thr Gln Gly Gln Asp Val Thr Leu
65 70 75 80

```
Ala Pro Ala Thr Glu Pro Ala Ser Gly Ser Ala Ala Thr Trp Gly Gln
                85                  90                  95

Asp Val Thr Ser Val Pro Val Thr Arg Pro Ala Leu Gly Ser Thr Thr
            100                 105                 110

Pro Pro Ala His Asp Val Thr Ser Ala Pro Asp Asn Lys Pro Ala Pro
        115                 120                 125

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
    130                 135                 140

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
145                 150                 155                 160

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
                165                 170                 175

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
            180                 185                 190

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
        195                 200                 205

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
    210                 215                 220

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
225                 230                 235                 240

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
                245                 250                 255

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
            260                 265                 270

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
        275                 280                 285

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
    290                 295                 300

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
305                 310                 315                 320

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
                325                 330                 335

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
            340                 345                 350
```

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
355 360 365

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
370 375 380

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
385 390 395 400

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
405 410 415

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
420 425 430

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
435 440 445

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
450 455 460

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
465 470 475 480

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
485 490 495

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
500 505 510

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
515 520 525

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
530 535 540

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
545 550 555 560

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
565 570 575

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
580 585 590

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
595 600 605

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
610 615 620

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
625 630 635 640

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
645 650 655

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
660 665 670

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
675 680 685

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
690 695 700

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
705 710 715 720

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
725 730 735

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
740 745 750

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
755 760 765

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
770 775 780

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
785 790 795 800

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
805 810 815

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
820 825 830

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
835 840 845

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
850 855 860

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
865 870 875 880

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
885 890 895

```
Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
            900                 905                 910

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
        915                 920                 925

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Asn
    930                 935                 940

Arg Pro Ala Leu Gly Ser Thr Ala Pro Pro Val His Asn Val Thr Ser
945                 950                 955                 960

Ala Ser Gly Ser Ala Ser Gly Ser Ala Ser Thr Leu Val His Asn Gly
                965                 970                 975

Thr Ser Ala Arg Ala Thr Thr Thr Pro Ala Ser Lys Ser Thr Pro Phe
            980                 985                 990

Ser Ile Pro Ser His His Ser Asp  Thr Pro Thr Thr Leu  Ala Ser His
        995                 1000                1005

Ser Thr  Lys Thr Asp Ala Ser  Ser Thr His His Ser  Ser Val Pro
    1010                1015                1020

Pro Leu  Thr Ser Ser Asn His  Ser Thr Ser Pro Gln  Leu Ser Thr
    1025                1030                1035

Gly Val  Ser Phe Phe Phe Leu  Ser Phe His Ile Ser  Asn Leu Gln
    1040                1045                1050

Phe Asn  Ser Ser Leu Glu Asp  Pro Ser Thr Asp Tyr  Tyr Gln Glu
    1055                1060                1065

Leu Gln  Arg Asp Ile Ser Glu  Met Phe Leu Gln Ile  Tyr Lys Gln
    1070                1075                1080

Gly Gly  Phe Leu Gly Leu Ser  Asn Ile Lys Phe Arg  Pro Gly Ser
    1085                1090                1095

Val Val  Val Gln Leu Thr Leu  Ala Phe Arg Glu Gly  Thr Ile Asn
    1100                1105                1110

Val His  Asp Val Glu Thr Gln  Phe Asn Gln Tyr Lys  Thr Glu Ala
    1115                1120                1125

Ala Ser  Arg Tyr Asn Leu Thr  Ile Ser Asp Val Ser  Val Ser Asp
    1130                1135                1140

Val Pro  Phe Pro Phe Ser Ala  Gln Ser Gly Ala Gly  Val Pro Gly
    1145                1150                1155
```

```
Trp Gly  Ile Ala Leu Leu Val  Leu Val Cys Val Leu  Val Ala Leu
    1160                 1165                 1170


Ala Ile  Val Tyr Leu Ile Ala  Leu Ala Val Cys Gln  Cys Arg Arg
    1175                 1180                 1185


Lys Asn  Tyr Gly Gln Leu Asp  Ile Phe Pro Ala Arg  Asp Thr Tyr
    1190                 1195                 1200


His Pro  Met Ser Glu Tyr Pro  Thr Tyr His Thr His  Gly Arg Tyr
    1205                 1210                 1215


Val Pro  Pro Ser Ser Thr Asp  Arg Ser Pro Tyr Glu  Lys Val Ser
    1220                 1225                 1230


Ala Gly  Asn Gly Gly Ser Ser  Leu Ser Tyr Thr Asn  Pro Ala Val
    1235                 1240                 1245


Ala Ala  Ala Ser Ala Asn Leu
    1250                 1255
```

<210> 82
<211> 555
<212> PRT
<213> Artificial Sequence

<220>
<223> MUC1 Protein 5xVNTR

<400> 82

```
Met Thr Pro Gly Thr Gln Ser Pro Phe Phe Leu Leu Leu Leu Thr
1               5                   10                  15


Val Leu Thr Val Val Thr Gly Ser Gly His Ala Ser Ser Thr Pro Gly
            20                  25                  30


Gly Glu Lys Glu Thr Ser Ala Thr Gln Arg Ser Ser Val Pro Ser Ser
        35                  40                  45


Thr Glu Lys Asn Ala Val Ser Met Thr Ser Ser Val Leu Ser Ser His
    50                  55                  60


Ser Pro Gly Ser Gly Ser Ser Thr Thr Gln Gly Gln Asp Val Thr Leu
65                  70                  75                  80


Ala Pro Ala Thr Glu Pro Ala Ser Gly Ser Ala Ala Thr Trp Gly Gln
                85                  90                  95


Asp Val Thr Ser Val Pro Val Thr Arg Pro Ala Leu Gly Ser Thr Thr
            100                 105                 110


Pro Pro Ala His Asp Val Thr Ser Ala Pro Asp Asn Lys Pro Ala Pro
```

115 120 125

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
130 135 140

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
145 150 155 160

Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His
165 170 175

Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro Gly Ser Thr Ala
180 185 190

Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr Arg Pro Ala Pro
195 200 205

Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser Ala Pro Asp Thr
210 215 220

Arg Pro Ala Pro Gly Ser Thr Ala Pro Pro Ala His Gly Val Thr Ser
225 230 235 240

Ala Pro Asp Asn Arg Pro Ala Leu Gly Ser Thr Ala Pro Pro Val His
245 250 255

Asn Val Thr Ser Ala Ser Gly Ser Ala Ser Gly Ser Ala Ser Thr Leu
260 265 270

Val His Asn Gly Thr Ser Ala Arg Ala Thr Thr Thr Pro Ala Ser Lys
275 280 285

Ser Thr Pro Phe Ser Ile Pro Ser His His Ser Asp Thr Pro Thr Thr
290 295 300

Leu Ala Ser His Ser Thr Lys Thr Asp Ala Ser Ser Thr His His Ser
305 310 315 320

Ser Val Pro Pro Leu Thr Ser Ser Asn His Ser Thr Ser Pro Gln Leu
325 330 335

Ser Thr Gly Val Ser Phe Phe Phe Leu Ser Phe His Ile Ser Asn Leu
340 345 350

Gln Phe Asn Ser Ser Leu Glu Asp Pro Ser Thr Asp Tyr Tyr Gln Glu
355 360 365

Leu Gln Arg Asp Ile Ser Glu Met Phe Leu Gln Ile Tyr Lys Gln Gly
370 375 380

Gly Phe Leu Gly Leu Ser Asn Ile Lys Phe Arg Pro Gly Ser Val Val

385 390 395 400

Val Gln Leu Thr Leu Ala Phe Arg Glu Gly Thr Ile Asn Val His Asp
405 410 415

Val Glu Thr Gln Phe Asn Gln Tyr Lys Thr Glu Ala Ala Ser Arg Tyr
420 425 430

Asn Leu Thr Ile Ser Asp Val Ser Val Ser Asp Val Pro Phe Pro Phe
435 440 445

Ser Ala Gln Ser Gly Ala Gly Val Pro Gly Trp Gly Ile Ala Leu Leu
450 455 460

Val Leu Val Cys Val Leu Val Ala Leu Ala Ile Val Tyr Leu Ile Ala
465 470 475 480

Leu Ala Val Cys Gln Cys Arg Arg Lys Asn Tyr Gly Gln Leu Asp Ile
485 490 495

Phe Pro Ala Arg Asp Thr Tyr His Pro Met Ser Glu Tyr Pro Thr Tyr
500 505 510

His Thr His Gly Arg Tyr Val Pro Pro Ser Ser Thr Asp Arg Ser Pro
515 520 525

Tyr Glu Lys Val Ser Ala Gly Asn Gly Gly Ser Ser Leu Ser Tyr Thr
530 535 540

Asn Pro Ala Val Ala Ala Ala Ser Ala Asn Leu
545 550 555

<210> 83
<211> 3768
<212> PRT
<213> Artificial Sequence

<220>
<223> MUC1 CDS wild type

<400> 83

Ala Thr Gly Ala Cys Ala Cys Cys Gly Gly Gly Cys Ala Cys Cys Cys
1 5 10 15

Ala Gly Thr Cys Thr Cys Cys Thr Thr Thr Cys Thr Thr Cys Cys Thr
20 25 30

Gly Cys Thr Gly Cys Thr Gly Cys Thr Cys Cys Thr Cys Ala Cys Ala
35 40 45

Gly Thr Gly Cys Thr Thr Ala Cys Ala Gly Thr Thr Gly Thr Thr Ala
50 55 60

```
Cys Ala Gly Gly Thr Thr Cys Thr Gly Gly Thr Cys Ala Thr Gly Cys
65                  70                  75                  80

Ala Ala Gly Cys Thr Cys Thr Ala Cys Cys Cys Cys Ala Gly Gly Thr
                85                  90                  95

Gly Gly Ala Gly Ala Ala Ala Ala Gly Gly Ala Gly Ala Cys Thr Thr
            100                 105                 110

Cys Gly Gly Cys Thr Ala Cys Cys Cys Ala Gly Ala Gly Ala Ala Gly
        115                 120                 125

Thr Thr Cys Ala Gly Thr Gly Cys Cys Cys Ala Gly Cys Thr Cys Thr
    130                 135                 140

Ala Cys Thr Gly Ala Gly Ala Ala Gly Ala Ala Thr Gly Cys Thr Gly
145                 150                 155                 160

Thr Gly Ala Gly Thr Ala Thr Gly Ala Cys Cys Ala Gly Cys Ala Gly
                165                 170                 175

Cys Gly Thr Ala Cys Thr Cys Thr Cys Cys Ala Gly Cys Cys Ala Cys
            180                 185                 190

Ala Gly Cys Cys Cys Cys Gly Gly Thr Thr Cys Ala Gly Gly Cys Thr
        195                 200                 205

Cys Cys Thr Cys Cys Ala Cys Cys Ala Cys Thr Cys Ala Gly Gly Gly
    210                 215                 220

Ala Cys Ala Gly Gly Ala Thr Gly Thr Cys Ala Cys Thr Cys Thr Gly
225                 230                 235                 240

Gly Cys Cys Cys Cys Gly Gly Cys Cys Ala Cys Gly Gly Ala Ala Cys
                245                 250                 255

Cys Ala Gly Cys Thr Thr Cys Ala Gly Gly Thr Thr Cys Ala Gly Cys
            260                 265                 270

Thr Gly Cys Cys Ala Cys Cys Thr Gly Gly Gly Gly Ala Cys Ala Gly
        275                 280                 285

Gly Ala Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly Gly Thr Cys Cys
    290                 295                 300

Cys Ala Gly Thr Cys Ala Cys Cys Ala Gly Gly Cys Cys Ala Gly Cys
305                 310                 315                 320

Cys Cys Thr Gly Gly Gly Cys Thr Cys Cys Ala Cys Cys Ala Cys Cys
                325                 330                 335
```

```
Cys Cys Gly Cys Cys Ala Gly Cys Cys Cys Ala Cys Gly Ala Thr Gly
            340                 345                 350

Thr Cys Ala Cys Cys Thr Cys Ala Gly Cys Cys Cys Cys Gly Gly Ala
        355                 360                 365

Cys Ala Ala Cys Ala Ala Gly Cys Cys Ala Gly Cys Cys Cys Cys Gly
    370                 375                 380

Gly Gly Cys Thr Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys
385                 390                 395                 400

Cys Ala Gly Cys Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys
                405                 410                 415

Cys Thr Cys Gly Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys
            420                 425                 430

Ala Gly Gly Cys Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr
        435                 440                 445

Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys Cys Ala Gly Cys
    450                 455                 460

Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly
465                 470                 475                 480

Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys Ala Gly Gly Cys
                485                 490                 495

Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys
            500                 505                 510

Cys Gly Cys Cys Cys Cys Cys Cys Cys Ala Gly Cys Cys Cys Ala Cys
        515                 520                 525

Gly Gly Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly Gly Cys Cys Cys
    530                 535                 540

Cys Gly Gly Ala Cys Ala Cys Cys Ala Gly Gly Cys Cys Gly Gly Cys
545                 550                 555                 560

Cys Cys Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys Cys Gly Cys Cys
                565                 570                 575

Cys Cys Cys Cys Cys Ala Gly Cys Cys Cys Ala Cys Gly Gly Thr Gly
            580                 585                 590

Thr Cys Ala Cys Cys Thr Cys Gly Gly Cys Cys Cys Cys Gly Gly Ala
        595                 600                 605
```

```
Cys Ala Cys Cys Ala Gly Gly Cys Cys Gly Gly Cys Cys Cys Cys Gly
    610                 615                 620

Gly Gly Cys Thr Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys
625                 630                 635                 640

Cys Ala Gly Cys Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys
                645                 650                 655

Cys Thr Cys Gly Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys
            660                 665                 670

Ala Gly Gly Cys Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr
        675                 680                 685

Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys Ala Gly Cys
    690                 695                 700

Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly
705                 710                 715                 720

Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys Ala Gly Gly Cys
                725                 730                 735

Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys
            740                 745                 750

Cys Gly Cys Cys Cys Cys Cys Cys Cys Ala Gly Cys Cys Cys Ala Cys
        755                 760                 765

Gly Gly Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly Gly Cys Cys Cys
    770                 775                 780

Cys Gly Gly Ala Cys Ala Cys Cys Ala Gly Gly Cys Cys Gly Gly Cys
785                 790                 795                 800

Cys Cys Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys Cys Gly Cys Cys
                805                 810                 815

Cys Cys Cys Cys Cys Ala Gly Cys Cys Cys Ala Cys Gly Gly Thr Gly
            820                 825                 830

Thr Cys Ala Cys Cys Thr Cys Gly Gly Cys Cys Cys Cys Gly Gly Ala
        835                 840                 845

Cys Ala Cys Cys Ala Gly Gly Cys Cys Gly Gly Cys Cys Cys Cys Gly
    850                 855                 860

Gly Gly Cys Thr Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys
865                 870                 875                 880
```

```
Cys Ala Gly Cys Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys
                885                 890                 895

Cys Thr Cys Gly Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys
            900                 905                 910

Ala Gly Gly Cys Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr
        915                 920                 925

Cys Cys Ala Cys Cys Gly Cys Cys Cys Cys Cys Cys Cys Ala Gly Cys
    930                 935                 940

Cys Cys Ala Cys Gly Gly Thr Gly Thr Cys Ala Cys Cys Thr Cys Gly
945                 950                 955                 960

Gly Cys Cys Cys Cys Gly Gly Ala Cys Ala Cys Cys Ala Gly Gly Cys
                965                 970                 975

Cys Gly Gly Cys Cys Cys Cys Gly Gly Gly Cys Thr Cys Cys Ala Cys
            980                 985                 990

Cys Gly Cys Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
        995                 1000                1005

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1010                1015                1020

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1025                1030                1035

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1040                1045                1050

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1055                1060                1065

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1070                1075                1080

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1085                1090                1095

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1100                1105                1110

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1115                1120                1125

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1130                1135                1140
```

```
Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1145                1150                1155

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1160                1165                1170

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1175                1180                1185

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1190                1195                1200

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1205                1210                1215

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1220                1225                1230

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1235                1240                1245

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1250                1255                1260

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1265                1270                1275

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1280                1285                1290

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1295                1300                1305

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1310                1315                1320

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1325                1330                1335

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1340                1345                1350

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1355                1360                1365

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1370                1375                1380

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1385                1390                1395
```

```
Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1400                 1405                 1410

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1415                 1420                 1425

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1430                 1435                 1440

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1445                 1450                 1455

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1460                 1465                 1470

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1475                 1480                 1485

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1490                 1495                 1500

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1505                 1510                 1515

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1520                 1525                 1530

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1535                 1540                 1545

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1550                 1555                 1560

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1565                 1570                 1575

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1580                 1585                 1590

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1595                 1600                 1605

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1610                 1615                 1620

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1625                 1630                 1635

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1640                 1645                 1650
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Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1655                 1660                 1665

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1670                 1675                 1680

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1685                 1690                 1695

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1700                 1705                 1710

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1715                 1720                 1725

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1730                 1735                 1740

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1745                 1750                 1755

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1760                 1765                 1770

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1775                 1780                 1785

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1790                 1795                 1800

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1805                 1810                 1815

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1820                 1825                 1830

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1835                 1840                 1845

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1850                 1855                 1860

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1865                 1870                 1875

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1880                 1885                 1890

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1895                 1900                 1905
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Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1910                 1915                 1920

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1925                 1930                 1935

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    1940                 1945                 1950

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    1955                 1960                 1965

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    1970                 1975                 1980

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    1985                 1990                 1995

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2000                 2005                 2010

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2015                 2020                 2025

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2030                 2035                 2040

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2045                 2050                 2055

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2060                 2065                 2070

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2075                 2080                 2085

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2090                 2095                 2100

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2105                 2110                 2115

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2120                 2125                 2130

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2135                 2140                 2145

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2150                 2155                 2160
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Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2165                 2170                 2175

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2180                 2185                 2190

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2195                 2200                 2205

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2210                 2215                 2220

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2225                 2230                 2235

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2240                 2245                 2250

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2255                 2260                 2265

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2270                 2275                 2280

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2285                 2290                 2295

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2300                 2305                 2310

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2315                 2320                 2325

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2330                 2335                 2340

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2345                 2350                 2355

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2360                 2365                 2370

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2375                 2380                 2385

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2390                 2395                 2400

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2405                 2410                 2415
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```
Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2420                 2425                 2430

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2435                 2440                 2445

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2450                 2455                 2460

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2465                 2470                 2475

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2480                 2485                 2490

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2495                 2500                 2505

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2510                 2515                 2520

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2525                 2530                 2535

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2540                 2545                 2550

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2555                 2560                 2565

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2570                 2575                 2580

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2585                 2590                 2595

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2600                 2605                 2610

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2615                 2620                 2625

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2630                 2635                 2640

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2645                 2650                 2655

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2660                 2665                 2670
```

```
Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2675                 2680                 2685

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2690                 2695                 2700

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2705                 2710                 2715

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2720                 2725                 2730

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Cys
    2735                 2740                 2745

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2750                 2755                 2760

Cys Cys  Gly Gly Ala Cys Ala  Cys Cys Ala Gly Gly  Cys Cys Gly
    2765                 2770                 2775

Gly Cys  Cys Cys Cys Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2780                 2785                 2790

Gly Cys  Cys Cys Cys Cys Cys  Cys Ala Gly Cys Cys  Cys Ala Thr
    2795                 2800                 2805

Gly Gly  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2810                 2815                 2820

Cys Cys  Gly Gly Ala Cys Ala  Ala Cys Ala Gly Gly  Cys Cys Cys
    2825                 2830                 2835

Gly Cys  Cys Thr Thr Gly Gly  Gly Cys Thr Cys Cys  Ala Cys Cys
    2840                 2845                 2850

Gly Cys  Cys Cys Cys Thr Cys  Cys Ala Gly Thr Cys  Cys Ala Cys
    2855                 2860                 2865

Ala Ala  Thr Gly Thr Cys Ala  Cys Cys Thr Cys Gly  Gly Cys Cys
    2870                 2875                 2880

Thr Cys  Ala Gly Gly Cys Thr  Cys Thr Gly Cys Ala  Thr Cys Ala
    2885                 2890                 2895

Gly Gly  Cys Thr Cys Ala Gly  Cys Thr Thr Cys Thr  Ala Cys Thr
    2900                 2905                 2910

Cys Thr  Gly Gly Thr Gly Cys  Ala Cys Ala Ala Cys  Gly Gly Cys
    2915                 2920                 2925
```

```
Ala Cys  Cys Thr Cys Thr Gly  Cys Cys Ala Gly Gly  Gly Cys Thr
    2930                 2935                 2940

Ala Cys  Cys Ala Cys Ala Ala  Cys Cys Cys Cys Ala  Gly Cys Cys
    2945                 2950                 2955

Ala Gly  Cys Ala Ala Gly Ala  Gly Cys Ala Cys Thr  Cys Cys Ala
    2960                 2965                 2970

Thr Thr  Cys Thr Cys Ala Ala  Thr Thr Cys Cys Cys  Ala Gly Cys
    2975                 2980                 2985

Cys Ala  Cys Cys Ala Cys Thr  Cys Thr Gly Ala Thr  Ala Cys Thr
    2990                 2995                 3000

Cys Cys  Thr Ala Cys Cys Ala  Cys Cys Cys Thr Thr  Gly Cys Cys
    3005                 3010                 3015

Ala Gly  Cys Cys Ala Thr Ala  Gly Cys Ala Cys Cys  Ala Ala Gly
    3020                 3025                 3030

Ala Cys  Thr Gly Ala Thr Gly  Cys Cys Ala Gly Thr  Ala Gly Cys
    3035                 3040                 3045

Ala Cys  Thr Cys Ala Cys Cys  Ala Thr Ala Gly Cys  Thr Cys Gly
    3050                 3055                 3060

Gly Thr  Ala Cys Cys Thr Cys  Cys Thr Cys Thr Cys  Ala Cys Cys
    3065                 3070                 3075

Thr Cys  Cys Thr Cys Cys Ala  Ala Thr Cys Ala Cys  Ala Gly Cys
    3080                 3085                 3090

Ala Cys  Thr Thr Cys Thr Cys  Cys Cys Cys Ala Gly  Thr Thr Gly
    3095                 3100                 3105

Thr Cys  Thr Ala Cys Thr Gly  Gly Gly Gly Thr Cys  Thr Cys Thr
    3110                 3115                 3120

Thr Thr  Cys Thr Thr Thr Thr  Thr Cys Cys Thr Gly  Thr Cys Thr
    3125                 3130                 3135

Thr Thr  Thr Cys Ala Cys Ala  Thr Thr Thr Cys Ala  Ala Ala Cys
    3140                 3145                 3150

Cys Thr  Cys Cys Ala Gly Thr  Thr Thr Ala Ala Thr  Thr Cys Cys
    3155                 3160                 3165

Thr Cys  Thr Cys Thr Gly Gly  Ala Ala Gly Ala Thr  Cys Cys Cys
    3170                 3175                 3180
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Ala Gly  Cys Ala Cys Cys Gly  Ala Cys Thr Ala Cys  Thr Ala Cys
    3185                 3190                 3195

Cys Ala  Ala Gly Ala Gly Cys  Thr Gly Cys Ala Gly  Ala Gly Ala
    3200                 3205                 3210

Gly Ala  Cys Ala Thr Thr Thr  Cys Thr Gly Ala Ala  Ala Thr Gly
    3215                 3220                 3225

Thr Thr  Thr Thr Thr Gly Cys  Ala Gly Ala Thr Thr  Thr Ala Thr
    3230                 3235                 3240

Ala Ala  Ala Cys Ala Ala Gly  Gly Gly Gly Gly Thr  Thr Thr Thr
    3245                 3250                 3255

Cys Thr  Gly Gly Gly Cys Cys  Thr Cys Thr Cys Cys  Ala Ala Thr
    3260                 3265                 3270

Ala Thr  Thr Ala Ala Gly Thr  Thr Cys Ala Gly Gly  Cys Cys Ala
    3275                 3280                 3285

Gly Gly  Ala Thr Cys Thr Gly  Thr Gly Gly Thr Gly  Gly Thr Ala
    3290                 3295                 3300

Cys Ala  Ala Thr Thr Gly Ala  Cys Thr Cys Thr Gly  Gly Cys Cys
    3305                 3310                 3315

Thr Thr  Cys Cys Gly Ala Gly  Ala Ala Gly Gly Thr  Ala Cys Cys
    3320                 3325                 3330

Ala Thr  Cys Ala Ala Thr Gly  Thr Cys Cys Ala Cys  Gly Ala Cys
    3335                 3340                 3345

Gly Thr  Gly Gly Ala Gly Ala  Cys Ala Cys Ala Gly  Thr Thr Cys
    3350                 3355                 3360

Ala Ala  Thr Cys Ala Gly Thr  Ala Thr Ala Ala Ala  Ala Cys Gly
    3365                 3370                 3375

Gly Ala  Ala Gly Cys Ala Gly  Cys Cys Thr Cys Thr  Cys Gly Ala
    3380                 3385                 3390

Thr Ala  Thr Ala Ala Cys Cys  Thr Gly Ala Cys Gly  Ala Thr Cys
    3395                 3400                 3405

Thr Cys  Ala Gly Ala Cys Gly  Thr Cys Ala Gly Cys  Gly Thr Gly
    3410                 3415                 3420

Ala Gly  Thr Gly Ala Thr Gly  Thr Gly Cys Cys Ala  Thr Thr Thr
    3425                 3430                 3435
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Cys Cys  Thr Thr Thr Cys Thr  Cys Thr Gly Cys Cys  Cys Ala Gly
    3440                3445                3450

Thr Cys  Thr Gly Gly Gly Gly  Cys Thr Gly Gly Gly  Gly Thr Gly
    3455                3460                3465

Cys Cys  Ala Gly Gly Cys Thr  Gly Gly Gly Gly Cys  Ala Thr Cys
    3470                3475                3480

Gly Cys  Gly Cys Thr Gly Cys  Thr Gly Gly Thr Gly  Cys Thr Gly
    3485                3490                3495

Gly Thr  Cys Thr Gly Thr Gly  Thr Thr Cys Thr Gly  Gly Thr Thr
    3500                3505                3510

Gly Cys  Gly Cys Thr Gly Gly  Cys Cys Ala Thr Thr  Gly Thr Cys
    3515                3520                3525

Thr Ala  Thr Cys Thr Cys Ala  Thr Thr Gly Cys Cys  Thr Thr Gly
    3530                3535                3540

Gly Cys  Thr Gly Thr Cys Thr  Gly Thr Cys Ala Gly  Thr Gly Cys
    3545                3550                3555

Cys Gly  Cys Cys Gly Ala Ala  Ala Gly Ala Ala Cys  Thr Ala Cys
    3560                3565                3570

Gly Gly  Gly Cys Ala Gly Cys  Thr Gly Gly Ala Cys  Ala Thr Cys
    3575                3580                3585

Thr Thr  Thr Cys Cys Ala Gly  Cys Cys Cys Gly Gly  Gly Ala Thr
    3590                3595                3600

Ala Cys  Cys Thr Ala Cys Cys  Ala Thr Cys Cys Thr  Ala Thr Gly
    3605                3610                3615

Ala Gly  Cys Gly Ala Gly Thr  Ala Cys Cys Cys Cys  Ala Cys Cys
    3620                3625                3630

Thr Ala  Cys Cys Ala Cys Ala  Cys Cys Cys Ala Thr  Gly Gly Gly
    3635                3640                3645

Cys Gly  Cys Thr Ala Thr Gly  Thr Gly Cys Cys Cys  Cys Cys Thr
    3650                3655                3660

Ala Gly  Cys Ala Gly Thr Ala  Cys Cys Gly Ala Thr  Cys Gly Thr
    3665                3670                3675

Ala Gly  Cys Cys Cys Cys Thr  Ala Thr Gly Ala Gly  Ala Ala Gly
    3680                3685                3690
```

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Gly Thr  Thr Thr Cys Thr Gly  Cys Ala Gly Gly Thr  Ala Ala Cys
    3695                 3700                 3705

Gly Gly  Thr Gly Gly Cys Ala  Gly Cys Ala Gly Cys  Cys Thr Cys
    3710                 3715                 3720

Thr Cys  Thr Thr Ala Cys Ala  Cys Ala Ala Ala Cys  Cys Cys Ala
    3725                 3730                 3735

Gly Cys  Ala Gly Thr Gly Gly  Cys Ala Gly Cys Cys  Gly Cys Thr
    3740                 3745                 3750

Thr Cys  Thr Gly Cys Cys Ala  Ala Cys Thr Thr Gly  Thr Ala Gly
    3755                 3760                 3765
```