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<150> US 62/214,884
<151> 2015-09-04

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ggaagcggac agtgtactaa ttatgctctc ttgaaattgg ctggagatgt tgagagcaac 60

cctggacct 69

<210> 16
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> 2A peptide sequence

<400> 16
gagggcagag gaagtcttct aacatgcggt gacgtggagg agaatcccgg ccct 54

<210> 17

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

<220>
<223> 2A peptide sequence

<400> 17
ggaagcggag agggcagagg aagtcttcta acatgcggtg acgtggagga gaatcccggc 60

cct 63

<210> 18
<211> 57
<212> DNA
<213> Artificial Sequence

<220>
<223> 2A peptide sequence

<400> 18
gctactaact tcagcctgct gaagcaggct ggagacgtgg aggagaaccc tggacct 57

<210> 19
<211> 66
<212> DNA
<213> Artificial Sequence

<220>
<223> 2A peptide sequence

<400> 19
ggaagcggag ctactaactt cagcctgctg aagcaggctg gagacgtgga ggagaaccct 60

ggacct 66

<210> 20
<211> 19
<212> DNA
<213> Artificial Sequence

<220>
<223> 5-MLV-U3-R primer

<400> 20
agcccacaac ccctcactc 19

<210> 21

<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> 3-MLV-Psi primer sequence

<400> 21
tctcccgatc ccggacga 18

<210> 22
<211> 26
<212> DNA
<213> Artificial Sequence

<220>
<223> Probe sequence

<400> 22
ccccaaatga aagacccccg ctgacg 26

<210> 23
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> IRES forward primer

<400> 23
ctgatcttac tctttggacc ttg 23

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

<220>
<223> IRES reverse primer

<400> 24
ccccttttc tggagactaa ataa 24

<210> 25
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> ENV forward primer

<400> 25
accctcaacc tcccctacaa gt 22

<210> 26
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> ENV reverse primer

<400> 26
gttaagcgcc tgataggctc 20

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

<220>
<223> Env probe sequence

<400> 27
ccccaaatga aagacccccg ctgacg 26

<210> 28
<211> 477
<212> DNA
<213> Artificial Sequence

<220>
<223> Human codon optimized heat stabilized CD coding sequence

<400> 28
atggtgaccg gcggcatggc ctccaagtgg gatcaaaagg gcatggatat cgcttacgag 60

gaggccctgc tgggctacaa ggagggcggc gtgcctatcg gcggctgtct gatcaacaac 120

aaggacggca gtgtgctggg caggggccac aacatgaggt tccagaaggg ctccgccacc 180

ctgcacggcg agatctccac cctggagaac tgtggcaggc tggagggcaa ggtgtacaag 240

gacaccaccc tgtacaccac cctgtcccct tgtgacatgt gtaccggcgc tatcatcatg 300

tacggcatcc ctaggtgtgt gatcggcgag aacgtgaact tcaagtccaa gggcgagaag 360

tacctgcaaa ccaggggcca cgaggtggtg gttgttgacg atgagaggtg taagaagctg 420

atgaagcagt tcatcgacga gaggcctcag gactggttcg aggatatcgg cgagtaa 477

<210> 29
<211> 158
<212> PRT
<213> Artificial Sequence

<220>
<223> Heat stabilized APOBEC modified CD polypeptide

<220>
<221> MISC_FEATURE
<222> (10)..(10)
<223> Xaa is any amino acid

<220>
<221> MISC_FEATURE
<222> (152)..(152)
<223> Xaa is any amino acid

<400> 29

Met Val Thr Gly Gly Met Ala Ser Lys Xaa Asp Gln Lys Gly Met Asp
1 5 10 15

Ile Ala Tyr Glu Glu Ala Leu Leu Gly Tyr Lys Glu Gly Gly Val Pro
20 25 30

Ile Gly Gly Cys Leu Ile Asn Asn Lys Asp Gly Ser Val Leu Gly Arg
35 40 45

Gly His Asn Met Arg Phe Gln Lys Gly Ser Ala Thr Leu His Gly Glu
50 55 60

Ile Ser Thr Leu Glu Asn Cys Gly Arg Leu Glu Gly Lys Val Tyr Lys
65 70 75 80

Asp Thr Thr Leu Tyr Thr Thr Leu Ser Pro Cys Asp Met Cys Thr Gly
85 90 95

Ala Ile Ile Met Tyr Gly Ile Pro Arg Cys Val Ile Gly Glu Asn Val
100 105 110

Asn Phe Lys Ser Lys Gly Glu Lys Tyr Leu Gln Thr Arg Gly His Glu
115 120 125

Val Val Val Val Asp Asp Glu Arg Cys Lys Lys Leu Met Lys Gln Phe
130 135 140

Ile Asp Glu Arg Pro Gln Asp Xaa Phe Glu Asp Ile Gly Glu
145 150 155

<210> 30
<211> 54
<212> DNA
<213> Artificial Sequence

<220>
<223> 2A peptide coding sequence

<400> 30
gagggcagag gaagtcttct aacatgcggt gacgtggagg agaatcccgg ccct 54

<210> 31
<211> 1062
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-T2A-GFPm of pAC3-T2A-GFPm

<400> 31
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cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagag ggcagaggaa gtcttctaac atgcggtgac 240

gtggaggaga atcccggccc tggcgcgcct atggccagca agggcgagga gctgttcacc 300

ggggtggtgc ccatcctggt cgagctggac ggcgacgtaa acggccacaa gttcagcgtg 360

tccggcgaag gagagggcga tgccacctac ggcaagctga ccctgaagtt catctgcacc 420

accggcaagc tgcccgtgcc ctggcccacc ctcgtgacca ccttgaccta cggcgtgcag 480

tgcttcgccc gctaccccga ccacatgaag cagcacgact tcttcaagtc cgccatgccc 540

gaaggctacg tccaggagcg caccatcttc ttcaaggacg acggcaacta caagacccgc 600

gccgaggtga agttcgaggg cgacaccctg gtgaaccgca tcgagctgaa gggcatcgac 660

ttcaaggagg acggcaacat cctggggcac aagctggagt acaactacaa cagccacaag 720

gtctatatca ccgccgacaa gcagaagaac ggcatcaagg tgaacttcaa gacccgccac 780

aacatcgagg acggcagcgt gcagctcgcc gaccactacc agcagaacac ccccatcggc 840

gacggccccg tgctgctgcc cgacaaccac tacctgagca cccagtccgc cctgagcaaa 900

gaccccaacg agaagcgcga tcacatggtc ctgctggagt tcgtgaccgc cgccgggatc 960

actctcggca tggacgagct gtacaagtgt gcggccgcag ataaaataaa agattttatt 1020

tagtctccag aaaaaggggg gaatgaaaga ccccacctgt ag 1062

<210> 32
<211> 1026
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-P2A-GFPm of pAC3-P2A-GFPm

<400> 32
ttcgaagggc tgtttaatag atccccctgg tttaccacct taatctccac catcatggga 60

cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagct actaacttca gcctgctgaa gcaggctgga 240

gacgtggagg agaaccctgg acctggcgcg cctatggcca gcaagggcga ggagctgttc 300

accggggtgg tgcccatcct ggtcgagctg gacggcgacg taaacggcca caagttcagc 360

gtgtccggcg aaggagaggg cgatgccacc tacggcaagc tgaccctgaa gttcatctgc 420

accaccggca agctgcccgt gccctggccc accctcgtga ccaccttgac ctacggcgtg 480

cagtgcttcg cccgctaccc cgaccacatg aagcagcacg acttcttcaa gtccgccatg 540

cccgaaggct acgtccagga gcgcaccatc ttcttcaagg acgacggcaa ctacaagacc 600

cgcgccgagg tgaagttcga gggcgacacc ctggtgaacc gcatcgagct gaagggcatc 660

gacttcaagg aggacggcaa catcctgggg cacaagctgg agtacaacta caacagccac 720

aaggtctata tcaccgccga caagcagaag aacggcatca aggtgaactt caagacccgc 780

cacaacatcg aggacggcag cgtgcagctc gccgaccact accagcagaa cacccccatc 840

ggcgacggcc ccgtgctgct gcccgacaac cactacctga gcacccagtc cgccctgagc 900

aaagacccca acgagaagcg cgatcacatg gtcctgctgg agttcgtgac cgccgccggg 960

atcactctcg gcatggacga gctgtacaag tgtgcggccg cagataaaat aaaagatttt 1020

atttag 1026

<210> 33
<211> 1029
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-E2A-GFPm of pAC3-E2A-GFPm

<400> 33
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cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccacag tgtactaatt atgctctctt gaaattggct 240

ggagatgttg agagcaaccc tggacctggc gcgcctatgg ccagcaaggg cgaggagctg 300

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 360

agcgtgtccg gcgaaggaga gggcgatgcc acctacggca agctgaccct gaagttcatc 420

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccacctt gacctacggc 480

gtgcagtgct tcgcccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 540

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 600

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 660

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 720

cacaaggtct atatcaccgc cgacaagcag aagaacggca tcaaggtgaa cttcaagacc 780

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 840

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 900

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 960

gggatcactc tcggcatgga cgagctgtac aagtgtgcgg ccgcagataa aataaaagat 1020

tttatttag 1029

<210> 34
<211> 1035
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-F2A-GFPm of pAC3-F2A-GFPm

<400> 34
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cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagtg aaacagactt tgaattttga ccttctcaag 240

ttggcgggag acgtggagtc caaccctgga cctggcgcgc ctatggccag caagggcgag 300

gagctgttca ccggggtggt gcccatcctg gtcgagctgg acggcgacgt aaacggccac 360

aagttcagcg tgtccggcga aggagagggc gatgccacct acggcaagct gaccctgaag 420

ttcatctgca ccaccggcaa gctgcccgtg ccctggccca ccctcgtgac caccttgacc 480

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tccgccatgc ccgaaggcta cgtccaggag cgcaccatct tcttcaagga cgacggcaac 600

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aagggcatcg acttcaagga ggacggcaac atcctggggc acaagctgga gtacaactac 720

aacagccaca aggtctatat caccgccgac aagcagaaga acggcatcaa ggtgaacttc 780

aagacccgcc acaacatcga ggacggcagc gtgcagctcg ccgaccacta ccagcagaac 840

acccccatcg gcgacggccc cgtgctgctg cccgacaacc actacctgag cacccagtcc 900

gccctgagca aagaccccaa cgagaagcgc gatcacatgg tcctgctgga gttcgtgacc 960

gccgccggga tcactctcgg catggacgag ctgtacaagt gtgcggccgc agataaaata 1020

aaagatttta tttag 1035

<210> 35
<211> 1032
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-GSG-T2A-GFPm of pAC3-GSG-T2A-GFPm

<400> 35
ttcgaagggc tgtttaatag atccccctgg tttaccacct taatctccac catcatggga 60

cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagga agcggagagg gcagaggaag tcttctaaca 240

tgcggtgacg tggaggagaa tcccggccct ggcgcgccta tggccagcaa gggcgaggag 300

ctgttcaccg gggtggtgcc catcctggtc gagctggacg gcgacgtaaa cggccacaag 360

ttcagcgtgt ccggcgaagg agagggcgat gccacctacg gcaagctgac cctgaagttc 420

atctgcacca ccggcaagct gcccgtgccc tggcccaccc tcgtgaccac cttgacctac 480

ggcgtgcagt gcttcgcccg ctaccccgac cacatgaagc agcacgactt cttcaagtcc 540

gccatgcccg aaggctacgt ccaggagcgc accatcttct tcaaggacga cggcaactac 600

aagacccgcg ccgaggtgaa gttcgagggc gacaccctgg tgaaccgcat cgagctgaag 660

ggcatcgact tcaaggagga cggcaacatc ctggggcaca agctggagta caactacaac 720

agccacaagg tctatatcac cgccgacaag cagaagaacg gcatcaaggt gaacttcaag 780

acccgccaca acatcgagga cggcagcgtg cagctcgccg accactacca gcagaacacc 840

cccatcggcg acggccccgt gctgctgccc gacaaccact acctgagcac ccagtccgcc 900

ctgagcaaag accccaacga gaagcgcgat cacatggtcc tgctggagtt cgtgaccgcc 960

gccgggatca ctctcggcat ggacgagctg tacaagtgtg cggccgcaga taaaataaaa 1020

gattttattt ag 1032

<210> 36
<211> 1035
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-GSG-P2A-GFPm of pAC3-GSG-P2A-GFPm

<400> 36
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cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagga agcggagcta ctaacttcag cctgctgaag 240

caggctggag acgtggagga gaaccctgga cctggcgcgc ctatggccag caagggcgag 300

gagctgttca ccggggtggt gcccatcctg gtcgagctgg acggcgacgt aaacggccac 360

aagttcagcg tgtccggcga aggagagggc gatgccacct acggcaagct gaccctgaag 420

ttcatctgca ccaccggcaa gctgcccgtg ccctggccca ccctcgtgac caccttgacc 480

tacggcgtgc agtgcttcgc ccgctacccc gaccacatga agcagcacga cttcttcaag 540

tccgccatgc ccgaaggcta cgtccaggag cgcaccatct tcttcaagga cgacggcaac 600

tacaagaccc gcgccgaggt gaagttcgag ggcgacaccc tggtgaaccg catcgagctg 660

aagggcatcg acttcaagga ggacggcaac atcctggggc acaagctgga gtacaactac 720

aacagccaca aggtctatat caccgccgac aagcagaaga acggcatcaa ggtgaacttc 780

aagacccgcc acaacatcga ggacggcagc gtgcagctcg ccgaccacta ccagcagaac 840

acccccatcg gcgacggccc cgtgctgctg cccgacaacc actacctgag cacccagtcc 900

gccctgagca aagaccccaa cgagaagcgc gatcacatgg tcctgctgga gttcgtgacc 960

gccgccggga tcactctcgg catggacgag ctgtacaagt gtgcggccgc agataaaata 1020

aaagatttta tttag 1035

<210> 37
<211> 1044
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-GSG-F2A-GFPm of pAC3-GSG-F2A-GFPm

<400> 37
ttcgaagggc tgtttaatag atccccctgg tttaccacct taatctccac catcatggga 60

cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagga agcggagtga aacagacttt gaattttgac 240

cttctcaagt tggcgggaga cgtggagtcc aaccctggac ctggcgcgcc tatggccagc 300

aagggcgagg agctgttcac cggggtggtg cccatcctgg tcgagctgga cggcgacgta 360

aacggccaca agttcagcgt gtccggcgaa ggagagggcg atgccaccta cggcaagctg 420

accctgaagt tcatctgcac caccggcaag ctgcccgtgc cctggcccac cctcgtgacc 480

accttgacct acggcgtgca gtgcttcgcc cgctaccccg accacatgaa gcagcacgac 540

ttcttcaagt ccgccatgcc cgaaggctac gtccaggagc gcaccatctt cttcaaggac 600

gacggcaact acaagacccg cgccgaggtg aagttcgagg gcgacaccct ggtgaaccgc 660

atcgagctga agggcatcga cttcaaggag gacggcaaca tcctggggca caagctggag 720

tacaactaca acagccacaa ggtctatatc accgccgaca agcagaagaa cggcatcaag 780

gtgaacttca agacccgcca caacatcgag gacggcagcg tgcagctcgc cgaccactac 840

cagcagaaca cccccatcgg cgacggcccc gtgctgctgc ccgacaacca ctacctgagc 900

acccagtccg ccctgagcaa agaccccaac gagaagcgcg atcacatggt cctgctggag 960

ttcgtgaccg ccgccgggat cactctcggc atggacgagc tgtacaagtg tgcggccgca 1020

gataaaataa aagattttat ttag 1044

<210> 38
<211> 1038
<212> DNA
<213> Artificial Sequence

<220>
<223> BstBI-env-GSG-E2A-GFPm of pAC3-GSG-E2A-GFPm

<400> 38
ttcgaagggc tgtttaatag atccccctgg tttaccacct taatctccac catcatggga 60

cctctaatag tactcttact gatcttactc tttggacctt gcattctcaa tcgattggtc 120

caatttgtta aagacaggat ctcagtggtc caggctctgg ttttgactca gcaatatcac 180

cagctaaaac ccatagagta cgagccagga agcggacagt gtactaatta tgctctcttg 240

aaattggctg gagatgttga gagcaaccct ggacctggcg cgcctatggc cagcaagggc 300

gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc tggacggcga cgtaaacggc 360

cacaagttca gcgtgtccgg cgaaggagag ggcgatgcca cctacggcaa gctgaccctg 420

aagttcatct gcaccaccgg caagctgccc gtgccctggc ccaccctcgt gaccaccttg 480

acctacggcg tgcagtgctt cgcccgctac cccgaccaca tgaagcagca cgacttcttc 540

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aactacaaga cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa ccgcatcgag 660

ctgaagggca tcgacttcaa ggaggacggc aacatcctgg ggcacaagct ggagtacaac 720

tacaacagcc acaaggtcta tatcaccgcc gacaagcaga agaacggcat caaggtgaac 780

ttcaagaccc gccacaacat cgaggacggc agcgtgcagc tcgccgacca ctaccagcag 840

aacaccccca tcggcgacgg ccccgtgctg ctgcccgaca accactacct gagcacccag 900

tccgccctga gcaaagaccc caacgagaag cgcgatcaca tggtcctgct ggagttcgtg 960

accgccgccg ggatcactct cggcatggac gagctgtaca agtgtgcggc cgcagataaa 1020

ataaaagatt ttatttag 1038

<210> 39
<211> 548
<212> DNA
<213> Artificial Sequence

<220>
<223> T2A-AscI-yCD2 of pAC3-T2A-yCD2

<400> 39
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cctatggtga ccggcggcat ggcctccaag tgggatcaaa agggcatgga tatcgcttac 120

gaggaggccc tgctgggcta caaggagggc ggcgtgccta tcggcggctg tctgatcaac 180

aacaaggacg gcagtgtgct gggcaggggc cacaacatga ggttccagaa gggctccgcc 240

accctgcacg gcgagatctc caccctggag aactgtggca ggctggaggg caaggtgtac 300

aaggacacca ccctgtacac caccctgtcc ccttgtgaca tgtgtaccgg cgctatcatc 360

atgtacggca tccctaggtg tgtgatcggc gagaacgtga acttcaagtc caagggcgag 420

aagtacctgc aaaccagggg ccacgaggtg gtggttgttg acgatgagag gtgtaagaag 480

ctgatgaagc agttcatcga cgagaggcct caggactggt tcgaggatat cggcgagtaa 540

gcggccgc 548

<210> 40
<211> 551
<212> DNA
<213> Artificial Sequence

<220>
<223> P2A-AscI-yCD2 of pAC3-P2A-yCD2

<400> 40
gctactaact tcagcctgct gaagcaggct ggagacgtgg aggagaaccc tggacctggc 60

gcgcctatgg tgaccggcgg catggcctcc aagtgggatc aaaagggcat ggatatcgct 120

tacgaggagg ccctgctggg ctacaaggag ggcggcgtgc ctatcggcgg ctgtctgatc 180

aacaacaagg acggcagtgt gctgggcagg ggccacaaca tgaggttcca gaagggctcc 240

gccaccctgc acggcgagat ctccaccctg gagaactgtg gcaggctgga gggcaaggtg 300

tacaaggaca ccaccctgta caccaccctg tccccttgtg acatgtgtac cggcgctatc 360

atcatgtacg gcatccctag gtgtgtgatc ggcgagaacg tgaacttcaa gtccaagggc 420

gagaagtacc tgcaaaccag gggccacgag gtggtggttg ttgacgatga gaggtgtaag 480

aagctgatga agcagttcat cgacgagagg cctcaggact ggttcgagga tatcggcgag 540

taagcggccg c 551

<210> 41
<211> 557
<212> DNA
<213> Artificial Sequence

<220>
<223> GSG-T2A-AscI-yCD2 of pAC3-GSG-T2A-yCD2

<400> 41
ggaagcggag agggcagagg aagtcttcta acatgcggtg acgtggagga gaatcccggc 60

cctggcgcgc ctatggtgac cggcggcatg gcctccaagt gggatcaaaa gggcatggat 120

atcgcttacg aggaggccct gctgggctac aaggagggcg gcgtgcctat cggcggctgt 180

ctgatcaaca acaaggacgg cagtgtgctg ggcaggggcc acaacatgag gttccagaag 240

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<210> 55
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Equine rhinitis A virus 2A peptide

<400> 55

Gln Cys Thr Asn Tyr Ala Leu Leu Lys Leu Ala Gly Asp Val Glu Ser
1 5 10 15

Asn Pro Gly Pro
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<210> 56
<211> 23
<212> PRT
<213> Artificial Sequence

<220>

<223> Foot-and-mouth disease 2A peptide

<400> 56

Pro Val Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly Asp
1 5 10 15

Val Glu Ser Asn Pro Gly Pro
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<210> 57
<211> 19
<212> PRT
<213> Artificial Sequence

<220>
<223> Porcine teschovirus-1 2A peptide

<400> 57

Ala Thr Asn Phe Ser Leu Leu Lys Gln Ala Gly Asp Val Glu Glu Asn
1 5 10 15

Pro Gly Pro

<210> 58
<211> 18
<212> PRT
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<220>
<223> Thosea asigna virus 2A peptide

<400> 58

Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu Glu Asn Pro
1 5 10 15

Gly Pro

<210> 59
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Encephalomyocarditis virus-B 2A peptide

<400> 59

Gly Ile Phe Asn Ala His Tyr Ala Gly Tyr Phe Ala Asp Leu Leu Ile
1 5 10 15

His Asp Ile Glu Thr Asn Pro Gly Pro
20 25

<210> 60
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Encephalomyocarditis virus-D 2A peptide

<400> 60

Gly Tyr Phe Ala Asp Leu Leu Ile His Asp Ile Glu Thr Asn Pro Gly
1 5 10 15

Pro

<210> 61
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Encephalomyocarditis virus-PV21 2A peptide

<400> 61

Arg Ile Phe Asn Ala His Tyr Ala Gly Tyr Phe Ala Asp Leu Leu Ile
1 5 10 15

His Asp Ile Glu Thr Asn Pro Gly Pro
20 25

<210> 62
<211> 25

<212> PRT
<213> Artificial Sequence

<220>
<223> Mengovirus 2A peptide

<400> 62

His Val Phe Glu Thr His Tyr Ala Gly Tyr Phe Ser Lys Leu Leu Ile
1 5 10 15

His Asp Val Glu Thr Asn Pro Gly Pro
20 25

<210> 63
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Theiler's encephalomyelitis virus-GD7 2A peptide

<400> 63

Lys Ala Val Arg Gly Tyr His Ala Asp Tyr Tyr Lys Gln Arg Leu Ile
1 5 10 15

His Asp Val Glu Met Asn Pro Gly Pro
20 25

<210> 64
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Thieler's encephalomyelitis virus-DA 2A peptide

<400> 64

Arg Ala Val Arg Ala Tyr His Ala Asp Tyr Tyr Lys Gln Arg Leu Ile
1 5 10 15

His Asp Val Glu Met Asn Pro Gly Pro
20 25

<210> 65
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Thieler's encephalomyelitis virus-BEAN 2A peptide

<400> 65

Lys Ala Val Arg Gly Tyr His Ala Asp Tyr Tyr Arg Gln Arg Leu Ile
1 5 10 15

His Asp Val Glu Thr Asn Pro Gly Pro
20 25

<210> 66
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Theiler's-Like Virus 2A peptide

<400> 66

Lys His Val Arg Glu Tyr His Ala Ala Tyr Tyr Lys Gln Arg Leu Met
1 5 10 15

His Asp Val Glu Thr Asn Pro Gly Pro
20 25

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

<220>
<223> Ljungan virus-174F 2A peptide

<400> 67

Met His Ser Asp Glu Met Asp Phe Ala Gly Gly Lys Phe Leu Asn Gln
1 5 10 15

Cys Gly Asp Val Glu Thr Asn Pro Gly Pro
20 25

<210> 68
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Ljungan virus-145SL 2A peptide

<400> 68

Met His Asn Asp Glu Met Asp Tyr Ser Gly Gly Lys Phe Leu Asn Gln
1 5 10 15

Cys Gly Asp Val Glu Ser Asn Pro Gly Pro
20 25

<210> 69
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Ljungan virus-(87-012) 2A peptide

<400> 69

Met His Ser Asp Glu Met Asp Phe Ala Gly Gly Lys Phe Leu Asn Gln
1 5 10 15

Cys Gly Asp Val Glu Thr Asn Pro Gly Pro
20 25

<210> 70
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Ljungan Virus - (M1146) 2A peptide

<400> 70

Tyr His Asp Lys Asp Met Asp Tyr Ala Gly Gly Lys Phe Leu Asn Gln
1 5 10 15

Cys Gly Asp Val Glu Thr Asn Pro Gly Pro
20 25

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

<220>
<223> Foot and Mouth Disease Virus 2A Peptide

<400> 71

Ala Pro Ala Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
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<210> 72
<211> 24
<212> PRT
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<220>
<223> Foot and Mouth Disease Virus-A12 2A Peptide

<400> 72

Ala Pro Gly Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
20

<210> 73
<211> 24
<212> PRT
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<220>
<223> Foot and Mouth Disease Virus-C1 2A Peptide

<400> 73

Ala Pro Ala Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
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<210> 74
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus-O1G 2A Peptide

<400> 74

Ala Pro Val Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1   5   10   15

Asp Met Glu Ser Asn Pro Gly Pro
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<210> 75
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus O1K 2A Peptide

<400> 75

Ala Pro Val Lys Gln Leu Thr Asn Phe Asp Leu Leu Lys Leu Ala Gly
1   5   10   15

Asp Val Glu Ser Asn Pro Gly Pro
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<210> 76
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus - O (Taiwan) 2A Peptide

<400> 76

Ala Pro Ala Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
20

<210> 77
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus - O/SK 2A Peptide

<400> 77

Ala Pro Val Lys Gln Leu Leu Ser Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
20

<210> 78
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus - SAT3 2A Peptide

<400> 78

Lys Pro Asp Lys Gln Met Cys Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
20

<210> 79
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Foot and Mouth Disease Virus - SAT2 2A Peptide

<400> 79

Gly Val Ala Lys Gln Leu Leu Asn Phe Asp Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
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<210> 80
<211> 24
<212> PRT
<213> Artificial Sequence

<220>
<223> Equine Rhinits A Virus 2A Peptide

<400> 80

Asn Ile Asn Lys Gln Cys Thr Asn Tyr Ser Leu Leu Lys Leu Ala Gly
1 5 10 15

Asp Val Glu Ser Asn Pro Gly Pro
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<210> 81
<211> 25
<212> PRT
<213> Artificial Sequence

<220>
<223> Equine Rhinitis B Virus 2A Peptide

<400> 81

Thr Ile Leu Ser Glu Gly Ala Thr Asn Phe Ser Leu Leu Lys Leu Ala
1 5 10 15

Gly Asp Val Glu Leu Asn Pro Gly Pro
20 25

<210> 82
<211> 25
<212> PRT
<213> Artificial Sequence

<220>

<223> Endogenous Retrovirus-3 2A Peptide

<400> 82

Asn Leu Leu Ser Gln Gly Ala Thr Asn Phe Asp Leu Leu Lys Leu Ala
1 5 10 15

Gly Asp Val Glu Ser Asn Pro Gly Pro
20 25

<210> 83
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-1 2A Peptide

<400> 83

Val Met Ala Phe Gln Gly Pro Gly Ala Thr Asn Phe Ser Leu Leu Lys
1 5 10 15

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 84
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-2 2A Peptide

<400> 84

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 85
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-3 2A Peptide

<400> 85

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
            20   25

<210> 86
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-4 2A Peptide

<400> 86

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
            20   25

<210> 87
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-5 2A Peptide

<400> 87

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
            20   25

<210> 88
<211> 27

<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-6 2A Peptide

<400> 88

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 89
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-7 2A Peptide

<400> 89

Val Val Ser Phe Gln Gly Pro Gly Ala Thr Asn Phe Ser Leu Leu Lys
1 5 10 15

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 90
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-8 2A Peptide

<400> 90

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

Gln Ala Gly Asp Ile Glu Glu Asn Pro Gly Pro
20 25

<210> 91
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-9 2A Peptide

<400> 91

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

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 92
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Punta Toro Virus-10 2A Peptide

<400> 92

Thr Leu Ser Phe Gln Gly Pro Gly Ala Thr Asn Phe Ser Leu Leu Lys
1 5 10 15

Gln Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 93
<211> 27
<212> PRT
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<220>
<223> Punta Toro Virus-11 2A Peptide

<400> 93

Arg Met Ser Phe Gln Gly Pro Gly Ala Thr Asn Phe Ser Leu Leu Lys
1 5 10 15

Arg Ala Gly Asp Val Glu Glu Asn Pro Gly Pro
20 25

<210> 94
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Ciricket Paralysis Virus 2A Peptide

<400> 94

Phe Leu Arg Lys Arg Thr Gln Leu Leu Met Ser Gly Asp Val Glu Ser
1 5 10 15

Asn Pro Gly Pro
20

<210> 95
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Drosophila C Virus 2A Peptide

<400> 95

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

Asn Pro Gly Pro
20

<210> 96
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Acute Bee Paralysis Virus 2A Peptide

<400> 96

Gly Ser Trp Thr Asp Ile Leu Leu Leu Leu Ser Gly Asp Val Glu Thr
1 5 10 15

Asn Pro Gly Pro
20

<210> 97
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Acute Bee Paralysis Virus Poland 1 isolate 2A Peptide

<400> 97

Gly Ser Trp Thr Asp Ile Leu Leu Leu Leu Ser Gly Asp Val Glu Thr
1 5 10 15

Asn Pro Gly Pro
20

<210> 98
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Acute Bee Paralysis Virus Hungary 1 isolate 2A Peptide

<400> 98

Gly Ser Trp Thr Asp Ile Leu Leu Leu Trp Ser Gly Asp Val Glu Thr
1 5 10 15

Asn Pro Gly Pro
20

<210> 99
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Infectious Flacherie Virus 2A Peptide

<400> 99

Thr Arg Ala Glu Ile Glu Asp Glu Leu Ile Arg Ala Gly Ile Glu Ser
1 5 10 15

Asn Pro Gly Pro
            20

<210> 100
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Tomato Aspermy Virus 2A Peptide

<400> 100

Arg Ala Glu Gly Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu Glu
1   5   10   15

Asn Pro Gly Pro
            20

<210> 101
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Equine Encephalosis Virus 2A Peptide

<400> 101

Gln Gly Ala Gly Arg Gly Ser Leu Val Thr Cys Gly Asp Val Glu Glu
1   5   10   15

Asn Pro Gly Pro
            20

<210> 102
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Avian Polyoma Virus 2A Peptide

<400> 102

Asn Tyr Pro Met Pro Glu Ala Leu Gln Lys Ile Ile Asp Leu Glu Ser
1 5 10 15

Asn Pro Pro Pro
20

<210> 103
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Kashmir bee virus 2A Peptide

<400> 103

Gly Thr Trp Glu Ser Val Leu Asn Leu Leu Ala Gly Asp Ile Glu Leu
1 5 10 15

Asn Pro Gly Pro
20

<210> 104
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Perina Nuda Picorna-like Virus (a) 2A Peptide

<400> 104

Ala Gln Gly Trp Val Pro Asp Leu Thr Val Asp Gly Asp Val Glu Ser
1 5 10 15

Asn Pro Gly Pro
20

<210> 105
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Perina Nuda Picorna-like Virus (b) 2A Peptide

<400> 105

Ile Gly Gly Gly Gln Lys Asp Leu Thr Gln Asp Gly Asp Ile Glu Ser
1 5 10 15

Asn Pro Gly Pro
20

<210> 106
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Ectropis Obliqua Picorna-like Virus (a) 2A Peptide

<400> 106

Ala Gln Gly Trp Ala Pro Asp Leu Thr Gln Asp Gly Asp Val Glu Ser
1 5 10 15

Asn Pro Gly Pro
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<210> 107
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Ectropis Obliqua Picorna-like Virus (b) 2A Peptide

<400> 107

Ile Gly Gly Gly Gln Arg Asp Leu Thr Gln Asp Gly Asp Ile Glu Ser
1 5 10 15

Asn Pro Gly Pro
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<210> 108
<211> 19
<212> PRT
<213> Artificial Sequence

<220>

<223> Providence Virus (a) 2A Peptide

<400> 108

Val Gly Asp Arg Gly Ser Leu Leu Thr Cys Gly Asp Val Glu Ser Asn
1 5 10 15

Pro Gly Pro

<210> 109
<211> 19
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<220>
<223> Providence Virus (b) 2A Peptide

<400> 109

Gly Asp Pro Ile Glu Asp Leu Thr Asp Asp Gly Asp Ile Glu Lys Asn
1 5 10 15

Pro Gly Pro

<210> 110
<211> 19
<212> PRT
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<220>
<223> Providence Virus (c) 2A Peptide

<400> 110

Ser Gly Gly Arg Gly Ser Leu Leu Thr Ala Gly Asp Val Glu Lys Asn
1 5 10 15

Pro Gly Pro

<210> 111
<211> 20
<212> PRT
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<220>
<223> Bovine Rotavirus 2A Peptide

<400> 111

Ser Lys Phe Gln Ile Asp Arg Ile Leu Ile Ser Gly Asp Ile Glu Leu
1   5   10   15

Asn Pro Gly Pro
            20

<210> 112
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Porcine Rotavirus 2A Peptide

<400> 112

Ala Lys Phe Gln Ile Asp Lys Ile Leu Ile Ser Gly Asp Val Glu Leu
1   5   10   15

Asn Pro Gly Pro
            20

<210> 113
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Human Rotavirus 2A Peptide

<400> 113

Ser Lys Phe Gln Ile Asp Lys Ile Leu Ile Ser Gly Asp Ile Glu Leu
1   5   10   15

Asn Pro Gly Pro
            20

<210> 114
<211> 20

<212> PRT
<213> Artificial Sequence

<220>
<223> Bombyx Mori Reovirus 2A Peptide

<400> 114

Phe Arg Ser Asn Tyr Asp Leu Leu Lys Leu Cys Gly Asp Ile Glu Ser
1 5 10 15

Asn Pro Gly Pro
20

<210> 115
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Lymantria Dispar Reovirus 2A Peptide

<400> 115

Phe Arg Ser Asn Tyr Asp Leu Leu Lys Leu Cys Gly Asp Val Glu Ser
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Asn Pro Gly Pro
20

<210> 116
<211> 20
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<213> Artificial Sequence

<220>
<223> Dendrolimus Punctatus Reovirus 2A Peptide

<400> 116

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Asn Pro Gly Pro
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<210> 117
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<220>
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<400> 117

Ser Ser Ile Ile Arg Thr Lys Met Leu Val Ser Gly Asp Val Glu Glu
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Asn Pro Gly Pro
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Asn Pro Gly Pro
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<210> 119
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<400> 119

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Asn Pro Gly Pro
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<210> 121
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Tyr Ile Pro Asp Phe Gly Gly Phe Leu Val Lys Ala Asp Ser Glu Phe
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Asn Pro Gly Pro
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<210> 122
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<220>
<223> B. bronchiseptica 2A Peptide

<400> 122

Val His Cys Ala Gly Arg Gly Gly Pro Val Arg Leu Leu Asp Lys Glu
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Gly Asn Pro Gly Pro
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<210> 123
<211> 20
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<220>
<223> Murine mor-1F 2A Peptide

<400> 123

Asp Leu Glu Leu Glu Thr Val Gly Ser His Gln Ala Asp Ala Glu Thr
1 5 10 15

Asn Pro Gly Pro
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<210> 124
<211> 20
<212> PRT
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<220>
<223> D. melanogaster mod(mdg4) 2A Peptide

<400> 124

Thr Ala Ala Asp Lys Ile Gln Gly Ser Trp Lys Met Asp Thr Glu Gly
1 5 10 15

Asn Pro Gly Pro
20

<210> 125
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<220>
<223> A. nidulans Ca Channel MID1 2A Peptide

<400> 125

Pro Ile Thr Asn Arg Pro Arg Asn Ser Gly Leu Ile Asp Thr Glu Ile
1 5 10 15

Asn Pro Gly Pro
20