SEQUENCE LISTING

<110> MEDIPHAGE BIOCEUTICALS, INC.
SLAVCEV, RODERICK
NAFISSI, NAFISEH

<120> EXPRESSION VECTORS, BACTERIAL SEQUENCE-FREE VECTORS, AND METHODS OF MAKING AND USING THE SAME

<130> 4471.007PC03

<150> US 63/331,638
<151> 2022-04-15

<150> US 63/306,015
<151> 2022-02-02

<150> US 63/211,343
<151> 2021-06-16

<160> 47

<170> PatentIn version 3.5

<210> 1
<211> 144
<212> DNA
<213> Artificial Sequence

<220>
<223> Artificial intron

<400> 1
gtaagtcgac gggccgggcc tgggccgggt ccgggccggg tcgttggatc cccactacag 60

cccgatactc aagcttgacg aattcgagta tccaaggtag tggactagtg tgacgctgct 120

gacccctttc tttcccttct gcag 144

<210> 2
<211> 190
<212> DNA
<213> Artificial Sequence

<220>
<223> 5'UTR1

<400> 2
ctgccttctc cctcctgtga gtttggtaag tcgacgggcc gggcctgggc cgggtccggg 60

ccgggtcgtt ggatccccac tacagcccga tactcaagct tgacgaattc gagtatccaa 120

ggtagtggac tagtgtgacg ctgctgaccc ctttctttcc cttctgcagg ttggtgtaca 180

gtagcttcca 190

<210> 3
<211> 771
<212> DNA
<213> Artificial Sequence

<220>
<223> 5'UTR1 with MAR-5 insertion

<400> 3
ctgccttctc cctcctgtga gtttggtaag tcgacgggcc gggcctgggc cgggtccggg 60

ccgggtatcc atagctgatt ggtctaaaat gagatacatc aacgctcctc catgtttttt 120

gttttctttt taaatgaaaa actttatttt ttaagaggag tttcaggttc atagcaaaat 180

tgagaggaag gtacattcaa gctgaggaag ttttcctcta ttcctagttt actgagagat 240

tgcatcatga atgggtgtta aattttgtca aatgcttttt ctgtgtctat caatatgacc 300

atgtgatttt cttctttaac ctgttgatgg gacaaattac gttaattgat tttcaaacgt 360

tgaaccaccc ttacatatct ggaataaatt ctacttggtt gtggtgtata ttttttgata 420

cattcttgga ttctttttgc taatattttg ttgaaaatgt ttgtatcttt gttcatgaga 480

gatattggtc tgttgttttc ttttcttgta atgtcatttt ctagttccgg tattaaggta 540

atgctggcct agttgaatga tttaggaagt attccctctg cttctgtctt ctgaaagaga 600

ttgtagaaag ttgatacaat ttttttttct ttaaatatct tgatagtcgt tggatcccca 660

ctacagcccg atactcaagc ttgacgaatt cgagtatcca aggtagtgga ctagtgtgac 720

gctgctgacc cctttctttc ccttctgcag gttggtgtac agtagcttcc a 771

<210> 4
<211> 117
<212> DNA
<213> Artificial Sequence

<220>
<223> 5'UTR

<400> 4
attgggatct tcacacagca ggtaaggttg cgggccgggc ctgggccggg tccgggccgg 60

gccgcactga cccctggtgt tgctttttt ttttaggccg caagctgaag cgtgtcc 117

<210> 5
<211> 698
<212> DNA
<213> Artificial Sequence

<220>
<223> 5'UTR2 (5'UTR of SEQ ID NO:4 with MAR-5 insertion)

<400> 5
attgggatct tcacacagca ggtaaggttg cgggccgggc ctgggccggg tccgggccgg 60

gtatccatag ctgattggtc taaaatgaga tacatcaacg ctcctccatg ttttttgttt 120

tctttttaaa tgaaaaactt tatttttaa gaggagtttc aggttcatag caaaattgag 180

aggaaggtac attcaagctg aggaagtttt cctctattcc tagtttactg agagattgca 240

tcatgaatgg gtgttaaatt ttgtcaaatg ctttttctgt gtctatcaat atgaccatgt 300

gattttcttc tttaacctgt tgatgggaca aattacgtta attgattttc aaacgttgaa 360

ccacccttac atatctggaa taaattctac ttggttgtgg tgtatatttt ttgatacatt 420

cttggattct ttttgctaat attttgttga aaatgtttgt atctttgttc atgagagata 480

ttggtctgtt gttttctttt cttgtaatgt cattttctag ttccggtatt aaggtaatgc 540

tggcctagtt gaatgattta ggaagtattc cctctgcttc tgtcttctga aagagattgt 600

agaaagttga tacaattttt ttttctttaa atatcttgat agccgcactg acccctggtg 660

ttgctttttt tttttaggcc gcaagctgaa gcgtgtcc 698

<210> 6
<211> 1579
<212> DNA
<213> Artificial Sequence

<220>
<223> A2UCOE element

<400> 6
gcggccgcac gcgtggccct ccgcgcctac agctcaagcc acatccgaag ggggagggag 60

ccgggagctg cgcgcggggc cgccgggggg aggggtggca ccgcccacgc cgggcggcca 120

cgaagggcgg ggcagcgggc gcgcgcgcgg cgggggggagg ggccggcgcc gcgcccgctg 180

ggaattgggg ccctaggggg agggcggagg cgccgacgac cgcggcactt accgttcgcg 240

gcgtggcgcc cggtggtccc caaggggagg gaaggggggag gcggggcgag gacagtgacc 300

ggagtctcct cagcggtggc ttttctgctt ggcagcctca gcggctggcg ccaaaaccgg 360

actccgccca cttcctcgcc cgccggtgcg agggtgtgga atcctccaga cgctgggggа 420

gggggagttg ggagcttaaa aactagtacc cctttgggac cactttcagc agcgaactct 480

cctgtacacc aggggtcagt tccacagacg cgggccaggg gtgggtcatt gcggcgtgaa 540

caataatttg actagaagtt gattcgggtg tttccggaag gggccgagtc aatccgccga 600

gttggggcac ggaaaacaaa aagggaaggc tactaagatt tttctggcgg gggttatcat 660

tggcgtaact gcagggacca cctcccgggt tgagggggct ggatctccag gctgcggatt 720

aagcccctcc cgtcggcgtt aatttcaaac tgcgcgacgt ttctcacctg ccttcgccaa 780

ggcaggggcc gggaccctat tccaagaggt agtaactagc aggactctag ccttccgcaa 840

ttcattgagc gcatttacgg aagtaacgtc gggtactgtc tctggccgca agggtgggag 900

gagtacgcat ttggcgtaag gtggggcgta gagccttccc gccattggcg gcggataggg 960

cgtttacgcg acggcctgac gtagcggaag acgccttagt gggggggaag gttctagaaa 1020

agcggcggca gcggctctag cggcagtagc agcagcgccg ggtcccgtgc ggaggtgctc 1080

ctcgcagagt tgtttctcca gcagcggcag ttctcactac agcgccagga cgagtccggt 1140

tcgtgttcgt ccgcggagat ctctctcatc tcgctcggct gcgggaaatc gggctgaagc 1200

gactgagtcc gcgatggagg taacgggttt gaaatcaatg agttattgaa aagggcatgg 1260

cgaggccgtt ggcgcctcag tggaagtcgg ccagccgcct ccgtgggaga gaggcaggaa 1320

atcggaccaa ttcagtagca gtggggctta aggtttatga acggggtctt gagcggaggc 1380

ctgagcgtac aaacagcttc cccaccctca gcctcccggc gccatttccc ttcactgggg 1440

gtgggggatg gggagctttc acatggcgga cgctgccccg ctggggtgaa agtggggcgc 1500

ggaggcggga cttcttattc cctttctaaa gcacgctgct tcgggggcca cggcgtctcc 1560

tcggacggcc gggcgcgcc 1579

<210> 7
<211> 761
<212> DNA
<213> Artificial Sequence

<220>

<223> SRF-UCOE

<400> 7
gcacacgacc acaattccac tgaaagcatt ttaatacgga acttgtcact cccagggagc 60

ctccgctcag ccggcagttg gttcatttca atccccacga caacccttca aagtgcaggg 120

cagacagcag gtggctctgc ccaggcgcct ggatcacagc ccggcctgca gccctcacct 180

gggcgcgggg agaccctgag gacgctcctc caggcggcgc tggccggggc ctgcggacac 240

ggacgggcgg gctgagctcc gggacccctc cccgcgcccc gcaccccgca ccccgcaccc 300

cgcaccccgc acccggcgct cacccgtccc agccccgccg cccgcagccc cagctgcaac 360

gcagccaccg ccgccatcgc acccggcccc gcgggcgctt ccgggacgca ggaggcatct 420

gcatccgggg cgccgctgag tcccgcccag agccccgccc ccggctccag gttctgcgag 480

cggcttccgc cgggctgctc cgcgggcgcg tcggccatga gcgagttgcc gggcgacgtg 540

cgggcgtttc tgcgggagca cccgagcctg cggctccaga cggacgcccg caaggttcgc 600

agcgcgggag gggaacggag tggcggagaa gggcgcagtt gggatgaggg gctgagggga 660

gggcagggga gaggagaggg caggggagag gggagagggg agagcaggag agaggggaag 720

gcaggggaga gggcgcggcg ggatcagggg aggagaggga a 761

<210> 8
<211> 478
<212> DNA
<213> Artificial Sequence

<220>
<223> cHS4 insulator

<400> 8
ggggagctca cggggacagc ccccccccaa agcccccagg gatgtaatta cgtccctccc 60

ccgctagggg gcagcagcga ccgcccgggg ctccgctccg gtccggcgct ccccccgcat 120

cccgagccgg cagcgtgcgg ggacagcccg ggcacgggga aggtggcacg ggatcgcttt 180

cctctgaacg cttctcgctg ctctttgagc ctgcagacac ctgggggata cggggaaaag 240

gggagctcac ggggacagcc ccccccccaaa gcccccaggg atgtaattac gtccctcccc 300

cgctaggggg cagcagcgac cgcccggggc tccgctccgg tccggcgctc cccccgcatc 360

ccgagccggc agcgtgcggg gacagcccgg gcacggggaa ggtggcacgg gatcgctttc 420

ctctgaacgc ttctcgctgc tctttgagcc tgcagacacc tgggggatac ggggaaaa 478

<210> 9
<211> 581
<212> DNA
<213> Artificial Sequence

<220>
<223> MAR-5

<400> 9
tatccatagc tgattggtct aaaatgagat acatcaacgc tcctccatgt tttttgtttt 60

cttttaaat gaaaaacttt atttttaag aggagtttca ggttcatagc aaaattgaga 120

ggaaggtaca ttcaagctga ggaagttttc ctctattcct agtttactga gagattgcat 180

catgaatggg tgttaaattt tgtcaaatgc tttttctgtg tctatcaata tgaccatgtg 240

attttcttct ttaacctgtt gatgggacaa attacgttaa ttgattttca aacgttgaac 300

caccccttaca tatctggaat aaattctact tggttgtggt gtatattttt tgatacattc 360

ttggattctt tttgctaata ttttgttgaa aatgtttgta tctttgttca tgagagatat 420

tggtctgttg ttttcttttc ttgtaatgtc attttctagt tccggtatta aggtaatgct 480

ggcctagttg aatgatttag gaagtattcc ctctgcttct gtcttctgaa agagattgta 540

gaaagttgat acaatttttt tttctttaaa tatcttgata g 581

<210> 10
<211> 1233
<212> DNA
<213> Artificial Sequence

<220>
<223> Human CSP-B MAR (huMAR)

<400> 10
ggatcccatt ctccttgatg tactaatttt tctttaaaag tgataataat agctcccatt 60

tagaattttt aaataacaca acaaatgtaa agtaactaat gtgtcctctg gatcatggta 120

agtaatgaat aaatttaact ccctttacct tctccctttg ctatttttc catgctagga 180

tttatacatt tttaaaaaac taaatctgct atcaaatgac agctttaaat ttacttttta 240

aaatttgtta ttgtatatat ttatggggta taaagtgatg ttatgatata tatatacaca 300

atgtacactg attaaatcaa gccaattaac attttatcat ctcaaatact taacattttt 360

tgtagtgaga acatttgaaa tttactttta gcaatttcaa aacatacatt attattatta 420

actatagtca ccatgatgta ccatagatct ttaaaaactt attcttcctg cctaactgaa 480

actttgtact ctttgactaa catcttttca ttccccccact tcccagcctc tggtaatcac 540

cattacacac tctgcttcta tgagttcaat tgctttagac tccacgtaat aaatgagatc 600

atgcagcatt tggctttctg tgcctggctt atccttgctt agcatggtgt cttacaggtt 660

catccatgtt gcaacaaata acagaatctc attctttgtt aaggctgaat actattccat 720

tgggtatata taccacattt tccttatcca ttaatccact gatggaccct taggttgttg 780

attccatata ttggctattg taaatagtgc agcaatgaac atgagagtgc aactatctct 840

tcaatgtact gatttcgaat ccttcggatc tatctcagaa gtgagattgc aggatcatat 900

aattctactt ttagtctttt gaggagctcc atacagcttt ccatatggcc atactaatta 960

cattctcatc aacagtgtac aatggtttcc ttttctccac atcctcacca acatttataa 1020

ttttttgtct ttttgataat agccatctga caggtgtaaa gtgatagctc attgcagttt 1080

taatttgcat tttttgatga ttagtaatgt tgagaatttt ttcatatatc tcttggccag 1140

ttgcatgtct tctttggaaa aatgtctatt cagttccttt gcccattttt taattgggat 1200

ttttggtttc ttgctattga gttgtttgaa ttc 1233

<210> 11
<211> 597
<212> DNA
<213> Artificial Sequence

<220>
<223> WPRE

<400> 11
tcgacaatca acctctggat tacaaaattt gtgaaagatt gactggtatt cttaactatg 60

ttgctccttt tacgctatgt ggatacgctg ctttaatgcc tttgtatcat gctattgctt 120

cccgtatggc tttcattttc tcctccttgt ataaatcctg gttgctgtct ctttatgagg 180

agttgtggcc cgttgtcagg caacgtggcg tggtgtgcac tgtgtttgct gacgcaaccc 240

ccactggttg gggcattgcc accacctgtc agctcctttc cgggactttc gctttccccc 300

tccctattgc cacggcggaa ctcatcgccg cctgccttgc ccgctgctgg acaggggctc 360

ggctgttggg cactgacaat tccgtggtgt tgtcggggaa gctgacgtcc tttccatggc 420

tgctcgcctg tgttgccacc tggattctgc gcgggacgtc cttctgctac gtcccttcgg 480

ccctcaatcc agcggacctt ccttcccgcg gcctgctgcc ggctctgcgg cctcttccgc 540

gtcttcgcct tcgccctcag acgagtcgga tctccctttg ggccgcctcc ccgcctg 597

<210> 12
<211> 111
<212> DNA
<213> Artificial Sequence

<220>
<223> Enhancer-1

<400> 12
gggactttcc ggggcggggc acgtggtgca cgggactttc cgtgcacgtg cacgggactt 60

tccgggactt tccgggactt tccgtgcacc acgtggggac tttccgtgca c 111

<210> 13
<211> 252
<212> DNA
<213> Artificial Sequence

<220>
<223> 2 copies of Xenopus leavis beta-globin polyadenylation signal (2xlBGpA)

<400> 13
aaccagcctc aagaacaccc gaatggagtc tctaagctac ataataccaa cttacacttt 60

acaaaatgtt gtcccccaaa atgtagccat tcgtatctgc tcctaataaa aagaaagttt 120

cttcacaacc agcctcaaga acacccgaat ggagtctcta agctacataa taccaactta 180

cactttacaa aatgttgtcc cccaaaatgt agccattcgt atctgctcct aataaaaaga 240

aagtttcttc ac 252

<210> 14
<211> 268
<212> DNA
<213> Artificial Sequence

<220>
<223> 2 copies of human beta-globin polyadenylation signal (2huBGpA)

<400> 14

gctcgctttc ttgctgtcca atttctatta aaggttcctt tgttccctaa gtccaactac 60

taaactgggg gatattatga agggccttga gcatctggat tctgcctaat aaaaaacatt 120

tattttcatt gcaagctcgc tttcttgctg tccaatttct attaaaggtt cctttgttcc 180

ctaagtccaa ctactaaact gggggatatt atgaagggcc ttgagcatct ggattctgcc 240

taataaaaaa catttatttt cattgcaa 268

<210> 15
<211> 260
<212> DNA
<213> Artificial Sequence

<220>
<223> Hybrid Xenopus leavis and human beta-globin polyadenylation signal (xlhuBGpA)

<400> 15
aaccagcctc aagaacaccc gaatggagtc tctaagctac ataataccaa cttacacttt 60

acaaaatgtt gtcccccaaa atgtagccat tcgtatctgc tcctaataaa aagaaagttt 120

cttcacgctc gctttcttgc tgtccaattt ctattaaagg ttcctttgtt ccctaagtcc 180

aactactaaa ctgggggata ttatgaaggg ccttgagcat ctggattctg cctaataaaa 240

aacatttatt ttcattgcaa 260

<210> 16
<211> 372
<212> DNA
<213> Artificial Sequence

<220>
<223> 2xlBGpA-A120

<400> 16
aaccagcctc aagaacaccc gaatggagtc tctaagctac ataataccaa cttacacttt 60

acaaaatgtt gtcccccaaa atgtagccat tcgtatctgc tcctaataaa aagaaagttt 120

cttcacaacc agcctcaaga acacccgaat ggagtctcta agctacataa taccaactta 180

cactttacaa aatgttgtcc cccaaaatgt agccattcgt atctgctcct aataaaaaga 240

aagtttcttc acaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 300

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 360

aaaaaaaaaa aa 372

<210> 17
<211> 388
<212> DNA
<213> Artificial Sequence

<220>
<223> 2huBGpA-A120

<400> 17
gctcgctttc ttgctgtcca atttctatta aaggttcctt tgttccctaa gtccaactac 60

taaactgggg gatattatga agggccttga gcatctggat tctgcctaat aaaaaacatt 120

tattttcatt gcaagctcgc tttcttgctg tccaatttct attaaaggtt cctttgttcc 180

ctaagtccaa ctactaaact gggggatatt atgaagggcc ttgagcatct ggattctgcc 240

taataaaaaa catttatttt cattgcaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 300

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 360

aaaaaaaaaa aaaaaaaaaa aaaaaaaa 388

<210> 18
<211> 380
<212> DNA
<213> Artificial Sequence

<220>
<223> xlhuBGpA-A120

<400> 18
aaccagcctc aagaacaccc gaatggagtc tctaagctac ataataccaa cttacacttt 60

acaaaatgtt gtcccccaaa atgtagccat tcgtatctgc tcctaataaa aagaaagttt 120

cttcacgctc gctttcttgc tgtccaattt ctattaaagg ttcctttgtt ccctaagtcc 180

aactactaaa ctgggggata ttatgaaggg ccttgagcat ctggattctg cctaataaaa 240

aacatttatt ttcattgcaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 300

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 360

aaaaaaaaaa aaaaaaaaaa 380

<210> 19
<211> 7011

<212> DNA
<213> Artificial Sequence

<220>
<223> pGL2-SS*-CAG-SecNLuc-2A-eGFP-BGpA-SS*

<400> 19
ccgggaggta ccgagctctt acgcgtgcta gaattaaagt aacccaatca gcacacaatt 60

gccattatac gcgcgtataa tggactattg tgtgctgata aacctatttc agcatactac 120

gcgcgtagta tgctgaaata ggtgactaga agttcctata ctttctagag aataggaact 180

tcataacttc gtataatgta tgctatacga agttatgggt tactttaatt tggttgctga 240

ctaattgaga tgcatgcttt gcatacttct gcctgctggg gagcctgggg actttccaca 300

cctggttgct gactaattga gatgcatgct ttgcatactt ctgcctgctg gggagcctgg 360

ggactttcca caccctggg tcgacattga ttattgacta gttattaata gtaatcaatt 420

acggggtcat tagttcatag cccatatatg gagttccgcg ttacataact tacggtaaat 480

ggcccgcctg gctgaccgcc caacgacccc cgcccattga cgtcaataat gacgtatgtt 540

cccatagtaa cgccaatagg gactttccat tgacgtcaat gggtggagta tttacggtaa 600

actgcccact tggcagtaca tcaagtgtat catatgccaa gtacgccccc tattgacgtc 660

aatgacggta aatggcccgc ctggcattat gcccagtaca tgaccttatg ggactttcct 720

acttggcagt acatctacgt attagtcatc gctattacca tggtcgaggt gagccccacg 780

ttctgcttca ctctccccat ctccccccccc tccccacccc caattttgta tttatttatt 840

ttttaattat tttgtgcagc gatgggggcg gggggggggg gggcgcgcgc caggcggggc 900

ggggcggggc gaggggcggg gcggggcgag gcggaaaggt gcggcggcag ccaatcagag 960

cggcgcgctc cgaaagtttc cttttatggc gaggcggcgg cggcggcggc cctataaaaa 1020

gcgaagcgcg cggcgggcgg gagtcgctgc gttgccttcg ccccgtgccc cgctccgcgc 1080

cgcctcgcgc cgcccgcccc ggctctgact gaccgcgtta ctcccacagg tgagcgggcg 1140

ggacggccct tctcctccgg gctgtaatta gcgcttggtt taatgacggc tcgtttcttt 1200

tctgtggctg cgtgaaagcc ttaaagggct ccgggagggc cctttgtgcg gggggggagcg 1260

gctcgggggg tgcgtgcgtg tgtgtgtgcg tggggagcgc cgcgtgcggc tccgcgctgc 1320

ccggcggctg tgagcgctgc gggcgcggcg cggggctttg tgcgctccgc agtgtgcgcg 1380

aggggagcgc ggccgggggc ggtgccccgc ggtgcggggg gggctgcgag gggaacaaag 1440

gctgcgtgcg gggtgtgtgc gtgggggggt gagcaggggg tgtgggcgcg gcggtcgggc 1500

tgtaaccccc ccctgcaccc ccctccccga gttgctgagc acggcccggc ttcgggtgcg 1560

gggctccgta cggggcgtgg cgcggggctc gccgtgccgg gcgggggggtg gcggcaggtg 1620

ggggtgccgg gcggggcggg gccgcctcgg gccggggagg gctcgggggga ggggcgcggc 1680

ggcccccgga gcgccggcgg ctgtcgaggc gcggcgagcc gcagccattg ccttttatgg 1740

taatcgtgcg agagggcgca gggacttcct ttgtcccaaa tctgtgcgga gccgaaatct 1800

gggaggcgcc gccgcacccc ctctagcggg cgcggggcga agcggtgcgg cgccggcagg 1860

aaggaaatgg gcggggaggg ccttcgtgcg tcgccgcgcc gccgtcccct tctccctctc 1920

cagcctcggg gctgtccgcg gggggacggc tgccttcggg ggggacgggg cagggcgggg 1980

ttcggcttct ggcgtgtgac cggcggctct agagcctctg ctaaccatgt tcatgccttc 2040

ttctttttcc tacagctcct gggcaacgtg ctggttattg tgctgtctca tcattttggc 2100

aaagaattga ttaattcgag cgaacgcgtc gccaccatga actccttctc cacaagcgcc 2160

ttcggtccag ttgccttctc cctgggcctg ctcctggtgt tgcctgctgc cttccctgcc 2220

ccagtcttca cactcgaaga tttcgttggg gactggcgac agacagccgg ctacaacctg 2280

gaccaagtcc ttgaacaggg aggtgtgtcc agtttgtttc agaatctcgg ggtgtccgta 2340

actccgatcc aaaggattgt cctgagcggt gaaaatgggc tgaagatcga catccatgtc 2400

atcatcccgt atgaaggtct gagcggcgac caaatgggcc agatcgaaaa aatttttaag 2460

gtggtgtacc ctgtggatga tcatcacttt aaggtgatcc tgcactatgg cacactggta 2520

atcgacgggg ttacgccgaa catgatcgac tatttcggac ggccgtatga aggcatcgcc 2580

gtgttcgacg gcaaaaagat cactgtaaca gggaccctgt ggaacggcaa caaaattatc 2640

gacgagcgcc tgatcaaccc cgacggctcc ctgctgttcc gagtaaccat caacggagtg 2700

accggctggc ggctgtgcga acgcattctg gcggctagcg ctactaactt cagcctgctg 2760

aagcaggctg gagacgtgga ggagaaccct ggacctggaa gcggagaggg cagaggaagt 2820

ctgctaacat gcggtgacgt cgaggagaat cctggacctg gatccggaat ggtgagcaag 2880

ggcgaggagc tgttcaccgg ggtggtgccc atcctggtcg agctggacgg cgacgtaaac 2940

ggccacaagt tcagcgtgtc cggcgagggc gagggcgatg ccacctacgg caagctgacc 3000

ctgaagttca tctgcaccac cggcaagctg cccgtgccct ggcccaccct cgtgaccacc 3060

ctgacctacg gcgtgcagtg cttcagccgc taccccgacc acatgaagca gcacgacttc 3120

ttcaagtccg ccatgcccga aggctacgtc caggagcgca ccatcttctt caaggacgac 3180

ggcaactaca agacccgcgc cgaggtgaag ttcgagggcg acaccctggt gaaccgcatc 3240

gagctgaagg gcatcgactt caaggaggac ggcaacatcc tggggcacaa gctggagtac 3300

aactacaaca gccacaacgt ctatatcatg gccgacaagc agaagaacgg catcaaggtg 3360

aacttcaaga tccgccacaa catcgaggac ggcagcgtgc agctcgccga ccactaccag 3420

cagaacaccc ccatcggcga cggccccgtg ctgctgcccg acaaccacta cctgagcacc 3480

cagtccgccc tgagcaaaga ccccaacgag aagcgcgatc acatggtcct gctggagttc 3540

gtgaccgccg ccgggatcac tctcggcatg gacgagctgt acaagtaagc ggccgcactc 3600

ctcaggtgca ggctgcctat cagaaggtgg tggctggtgt ggccaatgcc ctggctcaca 3660

aataccactg agatcttttt ccctctgcca aaaattatgg ggacatcatg aagccccttg 3720

agcatctgac ttctggctaa taaaggaaat ttattttcat tgcaatagtg tgttggaatt 3780

ttttgtgtct ctcactcgga aggacatggt gtggaaagtc cccaggctcc ccagcaggca 3840

gaagtatgca aagcatgcat ctcaattagt cagcaaccaa attaaagtaa cccataactt 3900

cgtatagcat acattatacg aagttatgaa gttcctattc tctagaaagt ataggaactt 3960

ctagtcacct atttcagcat actacgcgcg tagtatgctg aaataggttt atcagcacac 4020

aatagtccat tatacgcgcg tataatggca attgtgtgct gattgggtta ctttaattgg 4080

tgtggaaagt ccccaggctc cccagcaggc agaagtatgc aaagcatgca tctcaattag 4140

tcagcaacca tggatccgtc gaccgatgcc cttgagagcc ttcaacccag tcagctcctt 4200

ccggtgggcg cggggcatga ctatcgtcgc cgcacttatg actgtcttct ttatcatgca 4260

actcgtagga caggtgccgg cagcgctctt ccgcttcctc gctcactgac tcgctgcgct 4320

cggtcgttcg gctgcggcga gcggtatcag ctcactcaaa ggcggtaata cggttatcca 4380

cagaatcagg ggataacgca ggaaagaaca tgtgagcaaa aggccagcaa aaggccagga 4440

accgtaaaaa ggccgcgttg ctggcgtttt tccataggct ccgcccccct gacgagcatc 4500

acaaaaatcg acgctcaagt cagaggtggc gaaacccgac aggactataa agataccagg 4560

cgtttccccc tggaagctcc ctcgtgcgct ctcctgttcc gaccctgccg cttaccggat 4620

acctgtccgc ctttctccct tcgggaagcg tggcgctttc tcatagctca cgctgtaggt 4680

atctcagttc ggtgtaggtc gttcgctcca agctgggctg tgtgcacgaa cccccgttc 4740

agcccgaccg ctgcgcctta tccggtaact atcgtcttga gtccaacccg gtaagacacg 4800

acttatcgcc actggcagca gccactggta acaggattag cagagcgagg tatgtaggcg 4860

gtgctacaga gttcttgaag tggtggccta actacggcta cactagaaga acagtatttg 4920

gtatctgcgc tctgctgaag ccagttacct tcggaaaaag agttggtagc tcttgatccg 4980

gcaaacaaac caccgctggt agcggtggtt tttttgtttg caagcagcag attacgcgca 5040

gaaaaaaagg atctcaagaa gatcctttga tcttttctac ggggtctgac gctcagtgga 5100

acgaaaactc acgttaaggg attttggtca tgagattatc aaaaaggatc ttcacctaga 5160

tccttttaaa ttaaaaatga agttttaaat caatctaaag tatatatgag taaacttggt 5220

ctgacagtta ccaatgctta atcagtgagg cacctatctc agcgatctgt ctatttcgtt 5280

catccatagt tgcctgactc cccgtcgtgt agataactac gatacgggag ggcttaccat 5340

ctggccccag tgctgcaatg ataccgcgag acccacgctc accggctcca gatttatcag 5400

caataaacca gccagccgga agggccgagc gcagaagtgg tcctgcaact ttatccgcct 5460

ccatccagtc tattaattgt tgccgggaag ctagagtaag tagttcgcca gttaatagtt 5520

tgcgcaacgt tgttgccatt gctacaggca tcgtggtgtc acgctcgtcg tttggtatgg 5580

cttcattcag ctccggttcc caacgatcaa ggcgagttac atgatccccc atgttgtgca 5640

aaaaagcggt tagctccttc ggtcctccga tcgttgtcag aagtaagttg gccgcagtgt 5700

tatcactcat ggttatggca gcactgcata attctcttac tgtcatgcca tccgtaagat 5760

gcttttctgt gactggtgag tactcaacca agtcattctg agaatagtgt atgcggcgac 5820

cgagttgctc ttgcccggcg tcaatacggg ataataccgc gccacatagc agaactttaa 5880

aagtgctcat cattggaaaa cgttcttcgg ggcgaaaact ctcaaggatc ttaccgctgt 5940

tgagatccag ttcgatgtaa cccactcgtg cacccaactg atcttcagca tcttttactt 6000

tcaccagcgt ttctgggtga gcaaaaacag gaaggcaaaa tgccgcaaaa aagggaataa 6060

gggcgacacg gaaatgttga atactcatac tcttcctttt tcaatattat tgaagcattt 6120

atcagggtta ttgtctcatg agcggataca tatttgaatg tatttagaaa aataaacaaa 6180

taggggttcc gcgcacattt ccccgaaaag tgccacctga cgcgccctgt agcggcgcat 6240

taagcgcggc gggtgtggtg gttacgcgca gcgtgaccgc tacacttgcc agcgccctag 6300

cgcccgctcc tttcgctttc ttcccttcct ttctcgccac gttcgccggc tttccccgtc 6360

aagctctaaa tcgggggctc cctttagggt tccgatttag tgctttacgg cacctcgacc 6420

ccaaaaaact tgattagggt gatggttcac gtagtgggcc atcgccctga tagacggttt 6480

ttcgcccttt gacgttggag tccacgttct ttaatagtgg actcttgttc caaactggaa 6540

caacactcaa ccctatctcg gtctattctt ttgatttata agggattttg ccgatttcgg 6600

cctattggtt aaaaaatgag ctgatttaac aaaaatttaa cgcgaatttt aacaaaatat 6660

taacgcttac aatttgccat tcgccattca ggctgcgcaa ctgttgggaa gggcgatcgg 6720

tgcgggcctc ttcgctatta cgccagccca agctaccatg ataagtaagt aatattaagg 6780

tacgtggagg ttttacttgc tttaaaaaac ctcccacacc tccccctgaa cctgaaacat 6840

aaaatgaatg caattgttgt tgttaacttg tttattgcag cttataatgg ttacaaataa 6900

agcaatagca tcacaaattt cacaaataaa gcatttttt cactgcattc tagttgtggt 6960

ttgtccaaac tcatcaatgt atcttatggt actgtaactg agctaacata a 7011

<210> 20
<211> 6991
<212> DNA
<213> Artificial Sequence

<220>
<223> pcDNA-CMV-5'UTR-SecNLuc-P2A-eGFP-bGHpA

<400> 20
gacggatcgg gagatctccc gatcccctat ggtgcactct cagtacaatc tgctctgatg 60

ccgcatagtt aagccagtat ctgctccctg cttgtgtgtt ggaggtcgct gagtagtgcg 120

cgagcaaaat ttaagctaca acaaggcaag gcttgaccga caattgcatg aagaatctgc 180

ttagggttag gcgttttgcg ctgcttcgcg atgtacgggc cagatatacg cgttgacatt 240

gattattgac tagttattaa tagtaatcaa ttacggggtc attagttcat agcccatata 300

tggagttccg cgttacataa cttacggtaa atggcccgcc tggctgaccg cccaacgacc 360

cccgcccatt gacgtcaata atgacgtatg ttcccatagt aacgccaata gggactttcc 420

attgacgtca atgggtggag tatttacggt aaactgccca cttggcagta catcaagtgt 480

atcatatgcc aagtacgccc cctattgacg tcaatgacgg taaatggccc gcctggcatt 540

atgcccagta catgacctta tgggactttc ctacttggca gtacatctac gtattagtca 600

tcgctattac catggtgatg cggttttggc agtacatcaa tgggcgtgga tagcggtttg 660

actcacgggg atttccaagt ctccacccca ttgacgtcaa tgggagtttg ttttggcacc 720

aaaatcaacg ggactttcca aaatgtcgta acaactccgc cccattgacg caaatgggcg 780

gtaggcgtgt acggtgggag gtctatataa gcagagctct ctggctaact agagaaccca 840

ctgcttactg gcttatcgaa attaatacga ctcactatag ggagacccaa gctggctagc 900

gtttaaactt aagcttggta ccgagctcgg atccctgcct tctccctcct gtgagtttgg 960

taagtcactg actgtctatg cctgggaaag ggtgggcagg agatggggca gtgcaggaaa 1020

agtggcacta tgaaccctgc agccctagga atgcatctag acaattgtac taaccttctt 1080

ctctttcctc tcctgacagg ttggtgtaca gtagcttcca ctcctgccac catgaactcc 1140

ttctccacaa gcgccttcgg tccagttgcc ttctccctgg gcctgctcct ggtgttgcct 1200

gctgccttcc ctgccccagt cttcacactc gaagatttcg ttggggactg gcgacagaca 1260

gccggctaca acctggacca agtccttgaa cagggaggtg tgtccagttt gtttcagaat 1320

ctcggggtgt ccgtaactcc gatccaaagg attgtcctga gcggtgaaaa tgggctgaag 1380

atcgacatcc atgtcatcat cccgtatgaa ggtctgagcg gcgaccaaat gggccagatc 1440

gaaaaaattt ttaaggtggt gtaccctgtg gatgatcatc actttaaggt gatcctgcac 1500

tatggcacac tggtaatcga cggggttacg ccgaacatga tcgactattt cggacggccg 1560

tatgaaggca tcgccgtgtt cgacggcaaa aagatcactg taacagggac cctgtggaac 1620

ggcaacaaaa ttatcgacga gcgcctgatc aaccccgacg gctccctgct gttccgagta 1680

accatcaacg gagtgaccgg ctggcggctg tgcgaacgca ttctggcgga attctgcaga 1740

tatccagcac agtggcggcc gctcgagtct agaggaagcg gagctactaa cttcagcctg 1800

ctgaagcagg ctggagacgt ggaggagaac cctggaccta tgagcaaggg cgaggagctg 1860

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 1920

agcgtgtccg gcgagggcga gggcgatgcc acctacggca agctgaccct gaagttcatc 1980

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccaccct gacctacggc 2040

gtgcagtgct tcagccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 2100

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 2160

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 2220

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 2280

cacaacgtct atatcatggc cgacaagcag aagaacggca tcaaggtgaa cttcaagatc 2340

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 2400

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 2460

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 2520

gggatcactc acggcatgga cgagctgtac aagtaagggc ccgtttaaac ccgctgatca 2580

gcctcgactg tgccttctag ttgccagcca tctgttgttt gcccctcccc cgtgccttcc 2640

ttgaccctgg aaggtgccac tcccactgtc ctttcctaat aaaatgagga aattgcatcg 2700

cattgtctga gtaggtgtca ttctattctg gggggtgggg tggggcagga cagcaagggg 2760

gaggattggg aagacaatag caggcatgct ggggatgcgg tgggctctat ggcttctgag 2820

gcggaaagaa ccagctgggg ctctaggggg tatccccacg cgccctgtag cggcgcatta 2880

agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta cacttgccag cgccctagcg 2940

cccgctcctt tcgctttctt cccttccttt ctcgccacgt tcgccggctt tccccgtcaa 3000

gctctaaatc gggggctccc tttagggttc cgatttagtg ctttacggca cctcgacccc 3060

aaaaaacttg attagggtga tggttcacgt agtgggccat cgccctgata gacggttttt 3120

cgcccttga cgttggagtc cacgttcttt aatagtggac tcttgttcca aactggaaca 3180

acactcaacc ctatctcggt ctattctttt gatttataag ggattttgcc gatttcggcc 3240

tattggttaa aaaatgagct gatttaacaa aaatttaacg cgaattaatt ctgtggaatg 3300

tgtgtcagtt agggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca 3360

tgcatctcaa ttagtcagca accaggtgtg gaaagtcccc aggctcccca gcaggcagaa 3420

gtatgcaaag catgcatctc aattagtcag caaccatagt cccgccccta actccgccca 3480

tcccgcccct aactccgccc agttccgccc attctccgcc ccatggctga ctaatttttt 3540

ttatttatgc agaggccgag gccgcctctg cctctgagct attccagaag tagtgaggag 3600

gctttttgg aggcctaggc ttttgcaaaa agctcccggg agcttgtata tccattttcg 3660

gatctgatca agagacagga tgaggatcgt ttcgcatgat tgaacaagat ggattgcacg 3720

caggttctcc ggccgcttgg gtggagaggc tattcggcta tgactgggca caacagacaa 3780

tcggctgctc tgatgccgcc gtgttccggc tgtcagcgca ggggcgcccg gttctttttg 3840

tcaagaccga cctgtccggt gccctgaatg aactgcagga cgaggcagcg cggctatcgt 3900

ggctggccac gacgggcgtt ccttgcgcag ctgtgctcga cgttgtcact gaagcgggaa 3960

gggactggct gctattgggc gaagtgccgg ggcaggatct cctgtcatct caccttgctc 4020

ctgccgagaa agtatccatc atggctgatg caatgcggcg gctgcatacg cttgatccgg 4080

ctacctgccc attcgaccac caagcgaaac atcgcatcga gcgagcacgt actcggatgg 4140

aagccggtct tgtcgatcag gatgatctgg acgaagagca tcaggggctc gcgccagccg 4200

aactgttcgc caggctcaag gcgcgcatgc ccgacggcga ggatctcgtc gtgacccatg 4260

gcgatgcctg cttgccgaat atcatggtgg aaaatggccg cttttctgga ttcatcgact 4320

gtggccggct gggtgtggcg gaccgctatc aggacatagc gttggctacc cgtgatattg 4380

ctgaagagct tggcggcgaa tgggctgacc gcttcctcgt gctttacggt atcgccgctc 4440

ccgattcgca gcgcatcgcc ttctatcgcc ttcttgacga gttcttctga gcgggactct 4500

ggggttcgaa atgaccgacc aagcgacgcc caacctgcca tcacgagatt tcgattccac 4560

cgccgccttc tatgaaaggt tgggcttcgg aatcgttttc cgggacgccg gctggatgat 4620

cctccagcgc ggggatctca tgctggagtt cttcgcccac cccaacttgt ttattgcagc 4680

ttataatggt tacaaataaa gcaatagcat cacaaatttc acaaataaag catttttttc 4740

actgcattct agttgtggtt tgtccaaact catcaatgta tcttatcatg tctgtatacc 4800

gtcgacctct agctagagct tggcgtaatc atggtcatag ctgtttcctg tgtgaaattg 4860

ttatccgctc acaattccac acaacatacg agccggaagc ataaagtgta aagcctgggg 4920

tgcctaatga gtgagctaac tcacattaat tgcgttgcgc tcactgcccg ctttccagtc 4980

gggaaacctg tcgtgccagc tgcattaatg aatcggccaa cgcgcgggga gaggcggttt 5040

gcgtattggg cgctcttccg cttcctcgct cactgactcg ctgcgctcgg tcgttcggct 5100

gcggcgagcg gtatcagctc actcaaaggc ggtaatacgg ttatccacag aatcagggga 5160

taacgcagga aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaggc 5220

cgcgttgctg gcgtttttcc ataggctccg ccccccctgac gagcatcaca aaaatcgacg 5280

ctcaagtcag aggtggcgaa acccgacagg actataaaga taccaggcgt ttcccccctgg 5340

aagctccctc gtgcgctctc ctgttccgac cctgccgctt accggatacc tgtccgcctt 5400

tctcccttcg ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc tcagttcggt 5460

gtaggtcgtt cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg 5520

cgccttatcc ggtaactatc gtcttgagtc caacccggta agacacgact tatcgccact 5580

ggcagcagcc actggtaaca ggattagcag agcgaggtat gtaggcggtg ctacagagtt 5640

cttgaagtgg tggcctaact acggctacac tagaagaaca gtatttggta tctgcgctct 5700

gctgaagcca gttaccttcg gaaaaagagt tggtagctct tgatccggca aacaaaccac 5760

cgctggtagc ggtggttttt ttgtttgcaa gcagcagatt acgcgcagaa aaaaaggatc 5820

tcaagaagat cctttgatct tttctacggg gtctgacgct cagtggaacg aaaactcacg 5880

ttaagggatt ttggtcatga gattatcaaa aaggatcttc acctagatcc ttttaaatta 5940

aaaatgaagt tttaaatcaa tctaaagtat atatgagtaa acttggtctg acagttacca 6000

atgcttaatc agtgaggcac ctatctcagc gatctgtcta tttcgttcat ccatagttgc 6060

ctgactcccc gtcgtgtaga taactacgat acgggagggc ttaccatctg gccccagtgc 6120

tgcaatgata ccgcgagacc cacgctcacc ggctccagat ttatcagcaa taaaccagcc 6180

agccggaagg gccgagcgca gaagtggtcc tgcaacttta tccgcctcca tccagtctat 6240

taattgttgc cgggaagcta gagtaagtag ttcgccagtt aatagtttgc gcaacgttgt 6300

tgccattgct acaggcatcg tggtgtcacg ctcgtcgttt ggtatggctt cattcagctc 6360

cggttcccaa cgatcaaggc gagttacatg atcccccatg ttgtgcaaaa aagcggttag 6420

ctccttcggt cctccgatcg ttgtcagaag taagttggcc gcagtgttat cactcatggt 6480

tatggcagca ctgcataatt ctcttactgt catgccatcc gtaagatgct tttctgtgac 6540

tggtgagtac tcaaccaagt cattctgaga atagtgtatg cggcgaccga gttgctcttg 6600

cccggcgtca atacgggata ataccgcgcc acatagcaga actttaaaag tgctcatcat 6660

tggaaaacgt tcttcggggc gaaaactctc aaggatctta ccgctgttga gatccagttc 6720

gatgtaaccc actcgtgcac ccaactgatc ttcagcatct tttactttca ccagcgtttc 6780

tgggtgagca aaaacaggaa ggcaaaatgc cgcaaaaaag ggaataaggg cgacacggaa 6840

atgttgaata ctcatactct tccttttca atattattga agcatttatc agggttattg 6900

tctcatgagc ggatacatat ttgaatgtat ttagaaaaat aaacaaatag gggttccgcg 6960

cacatttccc cgaaaagtgc cacctgacgt c 6991

<210> 21
<211> 4555
<212> DNA
<213> Artificial Sequence

<220>
<223> pGL2-SS*-CAG-SecNLuc-2A-eGFP-WPRE-BGpA-SS*

<400> 21
taaagtaacc caatcagcac acaattgcca ttatacgcgc gtataatgga ctattgtgtg 60

ctgataaacc tatttcagca tactacgcgc gtagtatgct gaaataggtg actagaagtt 120

cctatacttt ctagagaata ggaacttcat aacttcgtat aatgtatgct atacgaagtt 180

atgggttact ttaatttggt tgctgactaa ttgagatgca tgctttgcat acttctgcct 240

gctggggagc ctggggactt tccacacctg gttgctgact aattgagatg catgctttgc 300

atacttctgc ctgctgggga gcctggggac tttccacacc cctgggtcga cattgattat 360

tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca tatatggagt 420

tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac gacccccgcc 480

cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact ttccattgac 540

gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa gtgtatcata 600

tgccaagtac gccccctatt gacgtcaatg acggtaaatg gcccgcctgg cattatgccc 660

agtacatgac cttatgggac tttcctactt ggcagtacat ctacgtatta gtcatcgcta 720

ttaccatggt cgaggtgagc cccacgttct gcttcactct ccccatctcc ccccccctccc 780

caccccccaat tttgtattta tttatttttt aattattttg tgcagcgatg ggggcggggg 840

ggggggggggc gcgcgccagg cggggcgggg cggggcgagg ggcggggcgg ggcgaggcgg 900

aaaggtgcgg cggcagccaa tcagagcggc gcgctccgaa agtttccttt tatggcgagg 960

cggcggcggc ggcggcccta taaaaagcga agcgcgcggc gggcgggagt cgctgcgttg 1020

ccttcgcccc gtgccccgct ccgcgccgcc tcgcgccgcc cgccccggct ctgactgacc 1080

gcgttactcc cacaggtgag cgggcgggac ggcccttctc ctccgggctg taattagcgc 1140

ttggtttaat gacggctcgt ttcttttctg tggctgcgtg aaagccttaa agggctccgg 1200

gagggccctt tgtgcggggg ggagcggctc ggggggtgcg tgcgtgtgtg tgtgcgtggg 1260

gagcgccgcg tgcggctccg cgctgcccgg cggctgtgag cgctgcgggc gcggcgcggg 1320

gctttgtgcg ctccgcagtg tgcgcgaggg gagcgcggcc gggggcggtg ccccgcggtg 1380

cggggggggc tgcgagggga acaaaggctg cgtgcggggt gtgtgcgtgg gggggtgagc 1440

agggggtgtg ggcgcggcgg tcgggctgta acccccccct gcacccccct ccccgagttg 1500

ctgagcacgg cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg 1560

tgccgggcgg ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg 1620

gggagggctc gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg 1680

cgagccgcag ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttcctttgt 1740

cccaaatctg tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg 1800

gggcgaagcg gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc 1860

cgcgccgccg tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc 1920

ttcggggggg acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag 1980

cctctgctaa ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg 2040

ttattgtgct gtctcatcat tttggcaaag aattgattaa ttcgagcgaa cgcgtcgcca 2100

ccatgaactc cttctccaca agcgccttcg gtccagttgc cttctccctg ggcctgctcc 2160

tggtgttgcc tgctgccttc cctgccccag tcttcacact cgaagatttc gttggggact 2220

ggcgacagac agccggctac aacctggacc aagtccttga acagggaggt gtgtccagtt 2280

tgtttcagaa tctcggggtg tccgtaactc cgatccaaag gattgtcctg agcggtgaaa 2340

atgggctgaa gatcgacatc catgtcatca tcccgtatga aggtctgagc ggcgaccaaa 2400

tgggccagat cgaaaaaatt tttaaggtgg tgtaccctgt ggatgatcat cactttaagg 2460

tgatcctgca ctatggcaca ctggtaatcg acggggttac gccgaacatg atcgactatt 2520

tcggacggcc gtatgaaggc atcgccgtgt tcgacggcaa aaagatcact gtaacaggga 2580

ccctgtggaa cggcaacaaa attatcgacg agcgcctgat caaccccgac ggctccctgc 2640

tgttccgagt aaccatcaac ggagtgaccg gctggcggct gtgcgaacgc attctggcgg 2700

ctagcgctac taacttcagc ctgctgaagc aggctggaga cgtggaggag aaccctggac 2760

ctggaagcgg agagggcaga ggaagtctgc taacatgcgg tgacgtcgag gagaatcctg 2820

gacctggatc cggaatggtg agcaagggcg aggagctgtt caccggggtg gtgcccatcc 2880

tggtcgagct ggacggcgac gtaaacggcc acaagttcag cgtgtccggc gagggcgagg 2940

gcgatgccac ctacggcaag ctgaccctga agttcatctg caccaccggc aagctgcccg 3000

tgccctggcc caccctcgtg accaccctga cctacggcgt gcagtgcttc agccgctacc 3060

ccgaccacat gaagcagcac gacttcttca agtccgccat gcccgaaggc tacgtccagg 3120

agcgcaccat cttcttcaag gacgacggca actacaagac ccgcgccgag gtgaagttcg 3180

agggcgacac cctggtgaac cgcatcgagc tgaagggcat cgacttcaag gaggacggca 3240

acatcctggg gcacaagctg gagtacaact acaacagcca caacgtctat atcatggccg 3300

acaagcagaa gaacggcatc aaggtgaact tcaagatccg ccacaacatc gaggacggca 3360

gcgtgcagct cgccgaccac taccagcaga acaccccccat cggcgacggc cccgtgctgc 3420

tgcccgacaa ccactacctg agcacccagt ccgccctgag caaagacccc aacgagaagc 3480

gcgatcacat ggtcctgctg gagttcgtga ccgccgccgg gatcactctc ggcatggacg 3540

agctgtacaa gtaaaatcaa cctctggatt acaaaatttg tgaaagattg actggtattc 3600

ttaactatgt tgctcctttt acgctatgtg gatacgctgc tttaatgcct ttgtatcatg 3660

ctattgcttc ccgtatggct ttcattttct cctccttgta taaatcctgg ttgctgtctc 3720

tttatgagga gttgtggccc gttgtcaggc aacgtggcgt ggtgtgcact gtgtttgctg 3780

acgcaacccc cactggttgg ggcattgcca ccacctgtca gctcctttcc gggactttcg 3840

ctttcccccct ccctattgcc acggcggaac tcatcgccgc ctgccttgcc cgctgctgga 3900

caggggctcg gctgttgggc actgacaatt ccgtggtgtt gtcggggaaa tcatcgtcct 3960

ttccttggct gctcgcctgt gttgccacct ggattctgcg cgggacgtcc ttctgctacg 4020

tcccttcggc cctcaatcca gcggaccttc cttcccgcgg cctgctgccg gctctgcggc 4080

ctcttccgcg tcttcgcctt cgccctcaga cgagtcggat ctcccttttgg gccgcctccc 4140

cgcaataaag gaaatttatt ttcattgcaa tagtgtgttg gaatttttttg tgtctctcac 4200

tcggaaggac atggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca 4260

tgcatctcaa ttagtcagca accaaattaa agtaacccat aacttcgtat agcatacatt 4320

atacgaagtt atgaagttcc tattctctag aaagtatagg aacttctagt cacctatttc 4380

agcatactac gcgcgtagta tgctgaaata ggtttatcag cacacaatag tccattatac 4440

gcgcgtataa tggcaattgt gtgctgattg ggttacttta attggtgtgg aaagtcccca 4500

ggctccccag caggcagaag tatgcaaagc atgcatctca attagtcagc aacca 4555

<210> 22
<211> 3610
<212> DNA
<213> Artificial Sequence

<220>
<223> pGL2-SS*-CMV-UTR1-SecNLuc-2A-eGFP-WPRE-BGpA-SS*

<400> 22
taaagtaacc caatcagcac acaattgcca ttatacgcgc gtataatgga ctattgtgtg 60

ctgataaacc tatttcagca tactacgcgc gtagtatgct gaaataggtg actagaagtt 120

cctatacttt ctagagaata ggaacttcat aacttcgtat aatgtatgct atacgaagtt 180

atgggttact ttaatttggt tgctgactaa ttgagatgca tgctttgcat acttctgcct 240

gctggggagc ctggggactt tccacacctg gttgctgact aattgagatg catgctttgc 300

atacttctgc ctgctgggga gcctggggac tttccacacc cctgggtcga cgacattgat 360

tattgactag ttattaatag taatcaatta cggggtcatt agttcatagc ccatatatgg 420

agttccgcgt tacataactt acggtaaatg gcccgcctgg ctgaccgccc aacgacccccc 480

gcccattgac gtcaataatg acgtatgttc ccatagtaac gccaataggg actttccatt 540

gacgtcaatg ggtggagtat ttacggtaaa ctgcccactt ggcagtacat caagtgtatc 600

atatgccaag tacgcccccc attgacgtca atgacggtaa atggcccgcc tggcattatg 660

cccagtacat gaccttatgg gactttccta cttggcagta catctacgta ttagtcatcg 720

ctattaccat ggtgatgcgg ttttggcagt acatcaatgg gcgtggatag cggtttgact 780

cacggggatt tccaagtctc caccccattg acgtcaatgg gagtttgttt tggcaccaaa 840

atcaacggga ctttccaaaa tgtcgtaaca actccgcccc attgacgcaa atgggcggta 900

ggcgtgtacg gtgggaggtc tatataagca gagctctgcc ttctccctcc tgtgagtttg 960

gtaagtcgac gggccgggcc tgggccgggt ccgggccggg tcgttggatc cccactacag 1020

cccgatactc aagcttgacg aattcgagta tccaaggtag tggactagtg tgacgctgct 1080

gacccctttc tttcccttct gcaggttggt gtacagtagc ttccaaattg attaattcga 1140

gcgaacgcgt cgccaccatg aactccttct ccacaagcgc cttcggtcca gttgccttct 1200

ccctgggcct gctcctggtg ttgcctgctg ccttccctgc cccagtcttc acactcgaag 1260

atttcgttgg ggactggcga cagacagccg gctacaacct ggaccaagtc cttgaacagg 1320

gaggtgtgtc cagtttgttt cagaatctcg gggtgtccgt aactccgatc caaaggattg 1380

tcctgagcgg tgaaaatggg ctgaagatcg acatccatgt catcatcccg tatgaaggtc 1440

tgagcggcga ccaaatgggc cagatcgaaa aaatttttaa ggtggtgtac cctgtggatg 1500

atcatcactt taaggtgatc ctgcactatg gcacactggt aatcgacggg gttacgccga 1560

acatgatcga ctatttcgga cggccgtatg aaggcatcgc cgtgttcgac ggcaaaaaga 1620

tcactgtaac agggaccctg tggaacggca acaaaattat cgacgagcgc ctgatcaacc 1680

ccgacggctc cctgctgttc cgagtaacca tcaacggagt gaccggctgg cggctgtgcg 1740

aacgcattct ggcggctagc gctactaact tcagcctgct gaagcaggct ggagacgtgg 1800

aggagaaccc tggacctgga agcggagagg gcagaggaag tctgctaaca tgcggtgacg 1860

tcgaggagaa tcctggacct ggatccggaa tggtgagcaa gggcgaggag ctgttcaccg 1920

gggtggtgcc catcctggtc gagctggacg gcgacgtaaa cggccacaag ttcagcgtgt 1980

ccggcgaggg cgagggcgat gccacctacg gcaagctgac cctgaagttc atctgcacca 2040

ccggcaagct gcccgtgccc tggcccaccc tcgtgaccac cctgacctac ggcgtgcagt 2100

gcttcagccg ctaccccgac cacatgaagc agcacgactt cttcaagtcc gccatgcccg 2160

aaggctacgt ccaggagcgc accatcttct tcaaggacga cggcaactac aagacccgcg 2220

ccgaggtgaa gttcgagggc gacaccctgg tgaaccgcat cgagctgaag ggcatcgact 2280

tcaaggagga cggcaacatc ctggggcaca agctggagta caactacaac agccacaacg 2340

tctatatcat ggccgacaag cagaagaacg gcatcaaggt gaacttcaag atccgccaca 2400

acatcgagga cggcagcgtg cagctcgccg accactacca gcagaacacc cccatcggcg 2460

acggccccgt gctgctgccc gacaaccact acctgagcac ccagtccgcc ctgagcaaag 2520

accccaacga gaagcgcgat cacatggtcc tgctggagtt cgtgaccgcc gccgggatca 2580

ctctcggcat ggacgagctg tacaagtaaa atcaacctct ggattacaaa atttgtgaaa 2640

gattgactgg tattcttaac tatgttgctc cttttacgct atgtggatac gctgctttaa 2700

tgcctttgta tcatgctatt gcttcccgta tggctttcat tttctcctcc ttgtataaat 2760

cctggttgct gtctctttat gaggagttgt ggcccgttgt caggcaacgt ggcgtggtgt 2820

gcactgtgtt tgctgacgca acccccactg gttggggcat tgccaccacc tgtcagctcc 2880

tttccgggac tttcgctttc cccctcccta ttgccacggc ggaactcatc gccgcctgcc 2940

ttgcccgctg ctggacaggg gctcggctgt tgggcactga caattccgtg gtgttgtcgg 3000

ggaaatcatc gtcctttcct tggctgctcg cctgtgttgc cacctggatt ctgcgcggga 3060

cgtccttctg ctacgtccct tcggccctca atccagcgga ccttccttcc cgcggcctgc 3120

tgccggctct gcggcctctt ccgcgtcttc gccttcgccc tcagacgagt cggatctccc 3180

tttgggccgc ctccccgcaa taaaggaaat ttattttcat tgcaatagtg tgttggaatt 3240

ttttgtgtct ctcactcgga aggacatggt gtggaaagtc cccaggctcc ccagcaggca 3300

gaagtatgca aagcatgcat ctcaattagt cagcaaccaa attaaagtaa cccataactt 3360

cgtatagcat acattatacg aagttatgaa gttcctattc tctagaaagt ataggaactt 3420

ctagtcacct atttcagcat actacgcgcg tagtatgctg aaataggttt atcagcacac 3480

aatagtccat tatacgcgcg tataatggca attgtgtgct gattgggtta ctttaattgg 3540

tgtggaaagt ccccaggctc cccagcaggc agaagtatgc aaagcatgca tctcaattag 3600

tcagcaacca 3610

<210> 23
<211> 4092
<212> DNA
<213> Artificial Sequence

<220>
<223> pGL2-SS*-CMV-UTR2-SecNLuc-2A-eGFP-WPRE-BGpA-SS*

<400> 23
aattaaagta acccaatcag cacacaattg ccattatacg cgcgtataat ggactattgt 60

gtgctgataa acctatttca gcatactacg cgcgtagtat gctgaaatag gtgactagaa 120

gttcctatac tttctagaga ataggaactt cataacttcg tataatgtat gctatacgaa 180

gttatgggtt actttaattt ggttgctgac taattgagat gcatgctttg catacttctg 240

cctgctgggg agcctgggga ctttccacac ctggttgctg actaattgag atgcatgctt 300

tgcatacttc tgcctgctgg ggagcctggg gactttccac acccctgggt cgacattgat 360

tattgactag ttattaatag taatcaatta cggggtcatt agttcatagc ccatatatgg 420

agttccgcgt tacataactt acggtaaatg gcccgcctgg ctgaccgccc aacgaccccc 480

gcccattgac gtcaataatg acgtatgttc ccatagtaac gccaataggg actttccatt 540

gacgtcaatg ggtggagtat ttacggtaaa ctgcccactt ggcagtacat caagtgtatc 600

atatgccaag tacgcccccc attgacgtca atgacggtaa atggcccgcc tggcattatg 660

cccagtacat gaccttatgg gactttccta cttggcagta catctacgta ttagtcatcg 720

ctattaccat ggtgatgcgg ttttggcagt acatcaatgg gcgtggatag cggtttgact 780

cacggggatt tccaagtctc caccccattg acgtcaatgg gagtttgttt tggcaccaaa 840

atcaacggga ctttccaaaa tgtcgtaaca actccgcccc attgacgcaa atgggcggta 900

ggcgtgtacg gtgggaggtc tatataagca gagctattgg gatcttcaca cagcaggtaa 960

ggttgcgggc cgggcctggg ccgggtccgg gccgggtatc catagctgat tggtctaaaa 1020

tgagatacat caacgctcct ccatgttttt tgttttcttt ttaaatgaaa aactttattt 1080

tttaagagga gtttcaggtt catagcaaaa ttgagaggaa ggtacattca agctgaggaa 1140

gttttcctct attcctagtt tactgagaga ttgcatcatg aatgggtgtt aaattttgtc 1200

aaatgctttt tctgtgtcta tcaatatgac catgtgattt tcttctttaa cctgttgatg 1260

ggacaaatta cgttaattga ttttcaaacg ttgaaccacc cttacatatc tggaataaat 1320

tctacttggt tgtggtgtat atttttttgat acattcttgg attctttttg ctaatatttt 1380

gttgaaaatg tttgtatctt tgttcatgag agatattggt ctgttgtttt cttttcttgt 1440

aatgtcattt tctagttccg gtattaaggt aatgctggcc tagttgaatg atttaggaag 1500

tattccctct gcttctgtct tctgaaagag attgtagaaa gttgatacaa ttttttttttc 1560

tttaaatatc ttgatagccg cactgacccc tggtgttgct ttttttttttt aggccgcaag 1620

ctgaagcgtg tccgccacca tgaactcctt ctccacaagc gccttcggtc cagttgcctt 1680

ctccctgggc ctgctcctgg tgttgcctgc tgccttccct gccccagtct tcacactcga 1740

agatttcgtt ggggactggc gacagacagc cggctacaac ctggaccaag tccttgaaca 1800

gggaggtgtg tccagtttgt ttcagaatct cggggtgtcc gtaactccga tccaaaggat 1860

tgtcctgagc ggtgaaaatg ggctgaagat cgacatccat gtcatcatcc cgtatgaagg 1920

tctgagcggc gaccaaatgg gccagatcga aaaaattttt aaggtggtgt accctgtgga 1980

tgatcatcac tttaaggtga tcctgcacta tggcacactg gtaatcgacg gggttacgcc 2040

gaacatgatc gactatttcg gacggccgta tgaaggcatc gccgtgttcg acggcaaaaa 2100

gatcactgta acagggaccc tgtggaacgg caacaaaatt atcgacgagc gcctgatcaa 2160

ccccgacggc tccctgctgt tccgagtaac catcaacgga gtgaccggct ggcggctgtg 2220

cgaacgcatt ctggcggcta gcgctactaa cttcagcctg ctgaagcagg ctggagacgt 2280

ggaggagaac cctggacctg gaagcggaga gggcagagga agtctgctaa catgcggtga 2340

cgtcgaggag aatcctggac ctggatccgg aatggtgagc aagggcgagg agctgttcac 2400

cggggtggtg cccatcctgg tcgagctgga cggcgacgta aacggccaca agttcagcgt 2460

gtccggcgag ggcgagggcg atgccaccta cggcaagctg accctgaagt tcatctgcac 2520

caccggcaag ctgcccgtgc cctggcccac cctcgtgacc accctgacct acggcgtgca 2580

gtgcttcagc cgctaccccg accacatgaa gcagcacgac ttcttcaagt ccgccatgcc 2640

cgaaggctac gtccaggagc gcaccatctt cttcaaggac gacggcaact acaagacccg 2700

cgccgaggtg aagttcgagg gcgacaccct ggtgaaccgc atcgagctga agggcatcga 2760

cttcaaggag gacggcaaca tcctggggca caagctggag tacaactaca acagccacaa 2820

cgtctatatc atggccgaca agcagaagaa cggcatcaag gtgaacttca agatccgcca 2880

caacatcgag gacggcagcg tgcagctcgc cgaccactac cagcagaaca cccccatcgg 2940

cgacggcccc gtgctgctgc ccgacaacca ctacctgagc acccagtccg ccctgagcaa 3000

agaccccaac gagaagcgcg atcacatggt cctgctggag ttcgtgaccg ccgccgggat 3060

cactctcggc atggacgagc tgtacaagta aaatcaacct ctggattaca aaatttgtga 3120

aagattgact ggtattctta actatgttgc tccttttacg ctatgtggat acgctgcttt 3180

aatgcctttg tatcatgcta ttgcttcccg tatggctttc attttctcct ccttgtataa 3240

atcctggttg ctgtctcttt atgaggagtt gtggcccgtt gtcaggcaac gtggcgtggt 3300

gtgcactgtg tttgctgacg caacccccac tggttggggc attgccacca cctgtcagct 3360

cctttccggg actttcgctt tccccctccc tattgccacg gcggaactca tcgccgcctg 3420

ccttgcccgc tgctggacag gggctcggct gttgggcact gacaattccg tggtgttgtc 3480

ggggaaatca tcgtcctttc cttggctgct cgcctgtgtt gccacctgga ttctgcgcgg 3540

gacgtccttc tgctacgtcc cttcggccct caatccagcg gaccttcctt cccgcggcct 3600

gctgccggct ctgcggcctc ttccgcgtct tcgccttcgc cctcagacga gtcggatctc 3660

cctttgggcc gcctccccgc aataaaggaa atttattttc attgcaatag tgtgttggaa 3720

ttttttgtgt ctctcactcg gaaggacatg gtgtggaaag tccccaggct ccccagcagg 3780

cagaagtatg caaagcatgc atctcaatta gtcagcaacc aaattaaagt aacccataac 3840

ttcgtatagc atacattata cgaagttatg aagttcctat tctctagaaa gtataggaac 3900

ttctagtcac ctatttcagc atactacgcg cgtagtatgc tgaaataggt ttatcagcac 3960

acaatagtcc attatacgcg cgtataatgg caattgtgtg ctgattgggt tactttaatt 4020

ggtgtggaaa gtccccaggc tccccagcag gcagaagtat gcaaagcatg catctcaatt 4080

agtcagcaac ca 4092

<210> 24
<211> 6249
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-CMV-UTR1-SecNLuc-2A-eGFP-3'UTR[2huBGpA-A120]-SS*

<400> 24
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgaca ttgattattg actagttatt aatagtaatc 420

aattacgggg tcattagttc atagcccata tatggagttc cgcgttacat aacttacggt 480

aaatggcccg cctggctgac cgcccaacga cccccgccca ttgacgtcaa taatgacgta 540

tgttcccata gtaacgccaa tagggacttt ccattgacgt caatgggtgg agtatttacg 600

gtaaactgcc cacttggcag tacatcaagt gtatcatatg ccaagtacgc cccctattga 660

cgtcaatgac ggtaaatggc ccgcctggca ttatgcccag tacatgacct tatgggactt 720

tcctacttgg cagtacatct acgtattagt catcgctatt accatggtga tgcggttttg 780

gcagtacatc aatgggcgtg gatagcggtt tgactcacgg ggatttccaa gtctccaccc 840

cattgacgtc aatgggagtt gttttggca ccaaaatcaa cgggactttc caaaatgtcg 900

taacaactcc gccccattga cgcaaatggg cggtaggcgt gtacggtggg aggtctatat 960

aagcagagct ctgccttctc cctcctgtga gtttggtaag tcgacgggcc gggcctgggc 1020

cgggtccggg ccgggtcgtt ggatccccac tacagcccga tactcaagct tgacgaattc 1080

gagtatccaa ggtagtggac tagtgtgacg ctgctgaccc ctttctttcc cttctgcagg 1140

ttggtgtaca gtagcttcca aattgattaa ttcgagcgaa cgcgtcgcca ccatgaactc 1200

cttctccaca agcgccttcg gtccagttgc cttctccctg ggcctgctcc tggtgttgcc 1260

tgctgccttc cctgccccag tcttcacact cgaagatttc gttggggact ggcgacagac 1320

agccggctac aacctggacc aagtccttga acagggaggt gtgtccagtt tgtttcagaa 1380

tctcggggtg tccgtaactc cgatccaaag gattgtcctg agcggtgaaa atgggctgaa 1440

gatcgacatc catgtcatca tcccgtatga aggtctgagc ggcgaccaaa tgggccagat 1500

cgaaaaaatt tttaaggtgg tgtaccctgt ggatgatcat cactttaagg tgatcctgca 1560

ctatggcaca ctggtaatcg acggggttac gccgaacatg atcgactatt tcggacggcc 1620

gtatgaaggc atcgccgtgt tcgacggcaa aaagatcact gtaacaggga ccctgtggaa 1680

cggcaacaaa attatcgacg agcgcctgat caaccccgac ggctccctgc tgttccgagt 1740

aaccatcaac ggagtgaccg gctggcggct gtgcgaacgc attctggcgg ctagcgctac 1800

taacttcagc ctgctgaagc aggctggaga cgtggaggag aaccctggac ctggaagcgg 1860

agagggcaga ggaagtctgc taacatgcgg tgacgtcgag gagaatcctg gacctggatc 1920

cggaatggtg agcaagggcg aggagctgtt caccggggtg gtgcccatcc tggtcgagct 1980

ggacggcgac gtaaacggcc acaagttcag cgtgtccggc gagggcgagg gcgatgccac 2040

ctacggcaag ctgaccctga agttcatctg caccaccggc aagctgcccg tgccctggcc 2100

caccctcgtg accaccctga cctacggcgt gcagtgcttc agccgctacc ccgaccacat 2160

gaagcagcac gacttcttca agtccgccat gcccgaaggc tacgtccagg agcgcaccat 2220

cttcttcaag gacgacggca actacaagac ccgcgccgag gtgaagttcg agggcgacac 2280

cctggtgaac cgcatcgagc tgaagggcat cgacttcaag gaggacggca acatcctggg 2340

gcacaagctg gagtacaact acaacagcca caacgtctat atcatggccg acaagcagaa 2400

gaacggcatc aaggtgaact tcaagatccg ccacaacatc gaggacggca gcgtgcagct 2460

cgccgaccac taccagcaga acaccccccat cggcgacggc cccgtgctgc tgcccgacaa 2520

ccactacctg agcacccagt ccgccctgag caaagacccc aacgagaagc gcgatcacat 2580

ggtcctgctg gagttcgtga ccgccgccgg gatcactctc ggcatggacg agctgtacaa 2640

gtaagctcgc tttcttgctg tccaatttct attaaaggtt cctttgttcc ctaagtccaa 2700

ctactaaact gggggatatt atgaagggcc ttgagcatct ggattctgcc taataaaaaa 2760

catttatttt cattgcaagc tcgctttctt gctgtccaat ttctattaaa ggttcctttg 2820

ttccctaagt ccaactacta aactgggggа tattatgaag ggccttgagc atctggattc 2880

tgcctaataa aaaacattta ttttcattgc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2940

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3000

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aactcggaag gacatggtgt ggaaagtccc 3060

caggctcccc agcaggcaga agtatgcaaa gcatgcatct caattagtca gcaaccaggt 3120

gtggaaagtc cccaggctcc ccagcaggca gaagtatgca aagcatgcat ctcaattagt 3180

cagcaaccaa attaaagtaa cccataactt cgtatagcat acattatacg aagttatgaa 3240

gttcctattc tctagaaagt ataggaactt ctagtcacct atttcagcat actacgcgcg 3300

tagtatgctg aaataggttt atcagcacac aatagtccat tatacgcgcg tataatggca 3360

attgtgtgct gattgggtta ctttaatttg gatccgtcga ccgatgccct tgagagcctt 3420

caacccagtc agctccttcc ggtgggcgcg gggcatgact atcgtcgccg cacttatgac 3480

tgtcttcttt atcatgcaac tcgtaggaca ggtgccggca gcgctcttcc gcttcctcgc 3540

tcactgactc gctgcgctcg gtcgttcggc tgcggcgagc ggtatcagct cactcaaagg 3600

cggtaatacg gttatccaca gaatcagggg ataacgcagg aaagaacatg tgagcaaaag 3660

gccagcaaaa ggccaggaac cgtaaaaagg ccgcgttgct ggcgtttttc cataggctcc 3720

gccccccctga cgagcatcac aaaaatcgac gctcaagtca gaggtggcga aacccgacag 3780

gactataaag ataccaggcg tttccccctg gaagctccct cgtgcgctct cctgttccga 3840

ccctgccgct taccggatac ctgtccgcct ttctcccttc gggaagcgtg gcgctttctc 3900

atagctcacg ctgtaggtat ctcagttcgg tgtaggtcgt tcgctccaag ctgggctgtg 3960

tgcacgaacc ccccgttcag cccgaccgct gcgccttatc cggtaactat cgtcttgagt 4020

ccaacccggt aagacacgac ttatcgccac tggcagcagc cactggtaac aggattagca 4080

gagcgaggta tgtaggcggt gctacagagt tcttgaagtg gtggcctaac tacggctaca 4140

ctagaagaac agtatttggt atctgcgctc tgctgaagcc agttaccttc ggaaaaagag 4200

ttggtagctc ttgatccggc aaacaaacca ccgctggtag cggtggtttt tttgtttgca 4260

agcagcagat tacgcgcaga aaaaaaggat ctcaagaaga tcctttgatc ttttctacgg 4320

ggtctgacgc tcagtggaac gaaaactcac gttaagggat tttggtcatg agattatcaa 4380

aaaggatctt cacctagatc cttttaaatt aaaaatgaag ttttaaatca atctaaagta 4440

tatatgagta aacttggtct gacagttacc aatgcttaat cagtgaggca cctatctcag 4500

cgatctgtct atttcgttca tccatagttg cctgactccc cgtcgtgtag ataactacga 4560

tacgggaggg cttaccatct ggccccagtg ctgcaatgat accgcgagac ccacgctcac 4620

cggctccaga tttatcagca ataaaccagc cagccggaag ggccgagcgc agaagtggtc 4680

ctgcaacttt atccgcctcc atccagtcta ttaattgttg ccgggaagct agagtaagta 4740

gttcgccagt taatagtttg cgcaacgttg ttgccattgc tacaggcatc gtggtgtcac 4800

gctcgtcgtt tggtatggct tcattcagct ccggttccca acgatcaagg cgagttacat 4860

gatcccccat gttgtgcaaa aaagcggtta gctccttcgg tcctccgatc gttgtcagaa 4920

gtaagttggc cgcagtgtta tcactcatgg ttatggcagc actgcataat tctcttactg 4980

tcatgccatc cgtaagatgc ttttctgtga ctggtgagta ctcaaccaag tcattctgag 5040

aatagtgtat gcggcgaccg agttgctctt gcccggcgtc aatacgggat aataccgcgc 5100

cacatagcag aactttaaaa gtgctcatca ttggaaaacg ttcttcgggg cgaaaactct 5160

caaggatctt accgctgttg agatccagtt cgatgtaacc cactcgtgca cccaactgat 5220

cttcagcatc ttttactttc accagcgttt ctgggtgagc aaaaacagga aggcaaaatg 5280

ccgcaaaaaa gggaataagg gcgacacgga aatgttgaat actcatactc ttccttttc 5340

aatattattg aagcatttat cagggttatt gtctcatgag cggatacata tttgaatgta 5400

tttagaaaaa taaacaaata ggggttccgc gcacatttcc ccgaaaagtg ccacctgacg 5460

cgccctgtag cggcgcatta agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta 5520

cacttgccag cgccctagcg cccgctcctt tcgctttctt cccttccttt ctcgccacgt 5580

tcgccggctt tccccgtcaa gctctaaatc gggggctccc tttagggttc cgatttagtg 5640

ctttacggca cctcgacccc aaaaaacttg attagggtga tggttcacgt agtgggccat 5700

cgccctgata gacggttttt cgcccctttga cgttggagtc cacgttcttt aatagtggac 5760

tcttgttcca aactggaaca acactcaacc ctatctcggt ctattctttt gatttataag 5820

ggattttgcc gatttcggcc tattggttaa aaaatgagct gatttaacaa aaatttaacg 5880

cgaattttaa caaaatatta acgcttacaa tttgccattc gccattcagg ctgcgcaact 5940

gttgggaagg gcgatcggtg cgggcctctt cgctattacg ccagcccaag ctaccatgat 6000

aagtaagtaa tattaaggta cgtggaggtt ttacttgctt taaaaaacct cccacacctc 6060

cccctgaacc tgaaacataa aatgaatgca attgttgttg ttaacttgtt tattgcagct 6120

tataatggtt acaaataaag caatagcatc acaaatttca caaataaagc atttttttca 6180

ctgcattcta gttgtggttt gtccaaactc atcaatgtat cttatggtac tgtaactgag 6240

ctaacataa 6249

<210> 25
<211> 6360
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-E1-CMV-UTR1-SecNLuc-2A-eGFP-3'UTR[2huBGpA-A120]-SS*

<400> 25
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacgac attgattatt gactagttat taatagtaat caattacggg 540

gtcattagtt catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc 600

gcctggctga ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat 660

agtaacgcca atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc 720

ccacttggca gtacatcaag tgtatcatat gccaagtacg ccccctattg acgtcaatga 780

cggtaaatgg cccgcctggc attatgccca gtacatgacc ttatgggact ttcctacttg 840

gcagtacatc tacgtattag tcatcgctat taccatggtg atgcggtttt ggcagtacat 900

caatgggcgt ggatagcggt ttgactcacg gggatttcca agtctccacc ccattgacgt 960

caatgggagt ttgttttggc accaaaatca acgggacttt ccaaaatgtc gtaacaactc 1020

cgccccattg acgcaaatgg gcggtaggcg tgtacggtgg gaggtctata taagcagagc 1080

tctgccttct ccctcctgtg agtttggtaa gtcgacgggc cgggcctggg ccgggtccgg 1140

gccgggtcgt tggatcccca ctacagcccg atactcaagc ttgacgaatt cgagtatcca 1200

aggtagtgga ctagtgtgac gctgctgacc cctttctttc ccttctgcag gttggtgtac 1260

agtagcttcc aaattgatta attcgagcga acgcgtcgcc accatgaact ccttctccac 1320

aagcgccttc ggtccagttg ccttctccct gggcctgctc ctggtgttgc ctgctgcctt 1380

ccctgcccca gtcttcacac tcgaagattt cgttggggac tggcgacaga cagccggcta 1440

caacctggac caagtccttg aacagggagg tgtgtccagt ttgtttcaga atctcggggt 1500

gtccgtaact ccgatccaaa ggattgtcct gagcggtgaa aatgggctga agatcgacat 1560

ccatgtcatc atcccgtatg aaggtctgag cggcgaccaa atgggccaga tcgaaaaaat 1620

ttttaaggtg gtgtaccctg tggatgatca tcactttaag gtgatcctgc actatggcac 1680

actggtaatc gacggggtta cgccgaacat gatcgactat ttcggacggc cgtatgaagg 1740

catcgccgtg ttcgacggca aaaagatcac tgtaacaggg accctgtgga acggcaacaa 1800

aattatcgac gagcgcctga tcaaccccga cggctccctg ctgttccgag taaccatcaa 1860

cggagtgacc ggctggcggc tgtgcgaacg cattctggcg gctagcgcta ctaacttcag 1920

cctgctgaag caggctggag acgtggagga gaaccctgga cctggaagcg gagagggcag 1980

aggaagtctg ctaacatgcg gtgacgtcga ggagaatcct ggacctggat ccggaatggt 2040

gagcaagggc gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc tggacggcga 2100

cgtaaacggc cacaagttca gcgtgtccgg cgagggcgag ggcgatgcca cctacggcaa 2160

gctgaccctg aagttcatct gcaccaccgg caagctgccc gtgccctggc ccaccctcgt 2220

gaccaccctg acctacggcg tgcagtgctt cagccgctac cccgaccaca tgaagcagca 2280

cgacttcttc aagtccgcca tgcccgaagg ctacgtccag gagcgcacca tcttcttcaa 2340

ggacgacggc aactacaaga cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa 2400

ccgcatcgag ctgaagggca tcgacttcaa ggaggacggc aacatcctgg ggcacaagct 2460

ggagtacaac tacaacagcc acaacgtcta tatcatggcc gacaagcaga agaacggcat 2520

caaggtgaac ttcaagatcc gccacaacat cgaggacggc agcgtgcagc tcgccgacca 2580

ctaccagcag aacacccccа tcggcgacgg ccccgtgctg ctgcccgaca accactacct 2640

gagcacccag tccgccctga gcaaagaccc caacgagaag cgcgatcaca tggtcctgct 2700

ggagttcgtg accgccgccg ggatcactct cggcatggac gagctgtaca agtaagctcg 2760

ctttcttgct gtccaatttc tattaaaggt tcctttgttc cctaagtcca actactaaac 2820

tgggggatat tatgaagggc cttgagcatc tggattctgc ctaataaaaa acatttattt 2880

tcattgcaag ctcgctttct tgctgtccaa tttctattaa aggttccttt gttccctaag 2940

tccaactact aaactggggg atattatgaa gggccttgag catctggatt ctgcctaata 3000

aaaaacattt attttcattg caaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3060

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3120

aaaaaaaaaa aaaaaaaaaa aaactcggaa ggacatggtg tggaaagtcc ccaggctccc 3180

cagcaggcag aagtatgcaa agcatgcatc tcaattagtc agcaaccagg tgtggaaagt 3240

ccccaggctc cccagcaggc agaagtatgc aaagcatgca tctcaattag tcagcaacca 3300

aattaaagta acccataact tcgtatagca tacattatac gaagttatga agttcctatt 3360

ctctagaaag tataggaact tctagtcacc tatttcagca tactacgcgc gtagtatgct 3420

gaaataggtt tatcagcaca caatagtcca ttatacgcgc gtataatggc aattgtgtgc 3480

tgattgggtt actttaattt ggatccgtcg accgatgccc ttgagagcct tcaacccagt 3540

cagctccttc cggtgggcgc ggggcatgac tatcgtcgcc gcacttatga ctgtcttctt 3600

tatcatgcaa ctcgtaggac aggtgccggc agcgctcttc cgcttcctcg ctcactgact 3660

cgctgcgctc ggtcgttcgg ctgcggcgag cggtatcagc tcactcaaag gcggtaatac 3720

ggttatccac agaatcaggg gataacgcag gaaagaacat gtgagcaaaa ggccagcaaa 3780

aggccaggaa ccgtaaaaag gccgcgttgc tggcgttttt ccataggctc cgcccccctg 3840

acgagcatca caaaaatcga cgctcaagtc agaggtggcg aaacccgaca ggactataaa 3900

gataccaggc gtttcccccct ggaagctccc tcgtgcgctc tcctgttccg accctgccgc 3960

ttaccggata cctgtccgcc tttctccctt cgggaagcgt ggcgctttct catagctcac 4020

gctgtaggta tctcagttcg gtgtaggtcg ttcgctccaa gctgggctgt gtgcacgaac 4080

ccccgttca gcccgaccgc tgcgccttat ccggtaacta tcgtcttgag tccaacccgg 4140

taagacacga cttatcgcca ctggcagcag ccactggtaa caggattagc agagcgaggt 4200

atgtaggcgg tgctacagag ttcttgaagt ggtggcctaa ctacggctac actagaagaa 4260

cagtatttgg tatctgcgct ctgctgaagc cagttacctt cggaaaaaga gttggtagct 4320

cttgatccgg caaacaaacc accgctggta gcggtggttt ttttgtttgc aagcagcaga 4380

ttacgcgcag aaaaaaagga tctcaagaag atcctttgat cttttctacg gggtctgacg 4440

ctcagtggaa cgaaaactca cgttaaggga ttttggtcat gagattatca aaaaggatct 4500

tcacctagat ccttttaaat taaaaatgaa gttttaaatc aatctaaagt atatatgagt 4560

aaacttggtc tgacagttac caatgcttaa tcagtgaggc acctatctca gcgatctgtc 4620

tatttcgttc atccatagtt gcctgactcc ccgtcgtgta gataactacg atacgggagg 4680

gcttaccatc tggccccagt gctgcaatga taccgcgaga cccacgctca ccggctccag 4740

atttatcagc aataaaccag ccagccggaa gggccgagcg cagaagtggt cctgcaactt 4800

tatccgcctc catccagtct attaattgtt gccgggaagc tagagtaagt agttcgccag 4860

ttaatagttt gcgcaacgtt gttgccattg ctacaggcat cgtggtgtca cgctcgtcgt 4920

ttggtatggc ttcattcagc tccggttccc aacgatcaag gcgagttaca tgatccccca 4980

tgttgtgcaa aaaagcggtt agctccttcg gtcctccgat cgttgtcaga agtaagttgg 5040

ccgcagtgtt atcactcatg gttatggcag cactgcataa ttctcttact gtcatgccat 5100

ccgtaagatg cttttctgtg actggtgagt actcaaccaa gtcattctga gaatagtgta 5160

tgcggcgacc gagttgctct tgcccggcgt caatacggga taataccgcg ccacatagca 5220

gaactttaaa agtgctcatc attggaaaac gttcttcggg gcgaaaactc tcaaggatct 5280

taccgctgtt gagatccagt tcgatgtaac ccactcgtgc acccaactga tcttcagcat 5340

cttttacttt caccagcgtt tctgggtgag caaaaacagg aaggcaaaat gccgcaaaaa 5400

agggaataag ggcgacacgg aaatgttgaa tactcatact cttccttttt caatattatt 5460

gaagcattta tcagggttat tgtctcatga gcggatacat atttgaatgt atttagaaaa 5520

ataaacaaat aggggttccg cgcacatttc cccgaaaagt gccacctgac gcgccctgta 5580

gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcgcag cgtgaccgct acacttgcca 5640

gcgccctagc gcccgctcct ttcgctttct tcccttcctt tctcgccacg ttcgccggct 5700

ttccccgtca agctctaaat cgggggctcc ctttagggtt ccgatttagt gctttacggc 5760

acctcgaccc caaaaaactt gattagggtg atggttcacg tagtgggcca tcgccctgat 5820

agacggtttt tcgccctttg acgttggagt ccacgttctt taatagtgga ctcttgttcc 5880

aaactggaac aacactcaac cctatctcgg tctattcttt tgatttataa gggattttgc 5940

cgatttcggc ctattggtta aaaaatgagc tgatttaaca aaaatttaac gcgaatttta 6000

acaaaatatt aacgcttaca atttgccatt cgccattcag gctgcgcaac tgttgggaag 6060

ggcgatcggt gcgggcctct tcgctattac gccagcccaa gctaccatga taagtaagta 6120

atattaaggt acgtggaggt tttacttgct ttaaaaaacc tcccacacct ccccctgaac 6180

ctgaaacata aaatgaatgc aattgttgtt gttaacttgt ttattgcagc ttataatggt 6240

tacaaataaa gcaatagcat cacaaatttc acaaataaag catttttttc actgcattct 6300

agttgtggtt tgtccaaact catcaatgta tcttatggta ctgtaactga gctaacataa 6360

<210> 26
<211> 6949
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-E1-CMV-UTR1-SecNLuc-2A-eGFP-WPRE-3'UTR[2huBGpA-A120]-SS*

<400> 26

cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacgac attgattatt gactagttat taatagtaat caattacggg 540

gtcattagtt catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc 600

gcctggctga ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat 660

agtaacgcca atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc 720

ccacttggca gtacatcaag tgtatcatat gccaagtacg ccccctattg acgtcaatga 780

cggtaaatgg cccgcctggc attatgccca gtacatgacc ttatgggact ttcctacttg 840

gcagtacatc tacgtattag tcatcgctat taccatggtg atgcggtttt ggcagtacat 900

caatgggcgt ggatagcggt ttgactcacg gggatttcca agtctccacc ccattgacgt 960

caatgggagt ttgttttggc accaaaatca acgggacttt ccaaaatgtc gtaacaactc 1020

cgccccattg acgcaaatgg gcggtaggcg tgtacggtgg gaggtctata taagcagagc 1080

tctgccttct ccctcctgtg agtttggtaa gtcgacgggc cgggcctggg ccgggtccgg 1140

gccgggtcgt tggatcccca ctacagcccg atactcaagc ttgacgaatt cgagtatcca 1200

aggtagtgga ctagtgtgac gctgctgacc cctttctttc ccttctgcag gttggtgtac 1260

agtagcttcc aaattgatta attcgagcga acgcgtcgcc accatgaact ccttctccac 1320

aagcgccttc ggtccagttg ccttctccct gggcctgctc ctggtgttgc ctgctgcctt 1380

ccctgcccca gtcttcacac tcgaagattt cgttggggac tggcgacaga cagccggcta 1440

caacctggac caagtccttg aacagggagg tgtgtccagt ttgtttcaga atctcggggt 1500

gtccgtaact ccgatccaaa ggattgtcct gagcggtgaa aatgggctga agatcgacat 1560

ccatgtcatc atcccgtatg aaggtctgag cggcgaccaa atgggccaga tcgaaaaaat 1620

ttttaaggtg gtgtaccctg tggatgatca tcactttaag gtgatcctgc actatggcac 1680

actggtaatc gacggggtta cgccgaacat gatcgactat ttcggacggc cgtatgaagg 1740

catcgccgtg ttcgacggca aaaagatcac tgtaacaggg accctgtgga acggcaacaa 1800

aattatcgac gagcgcctga tcaaccccga cggctccctg ctgttccgag taaccatcaa 1860

cggagtgacc ggctggcggc tgtgcgaacg cattctggcg gctagcgcta ctaacttcag 1920

cctgctgaag caggctggag acgtggagga gaaccctgga cctggaagcg gagagggcag 1980

aggaagtctg ctaacatgcg gtgacgtcga ggagaatcct ggacctggat ccggaatggt 2040

gagcaagggc gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc tggacggcga 2100

cgtaaacggc cacaagttca gcgtgtccgg cgagggcgag ggcgatgcca cctacggcaa 2160

gctgaccctg aagttcatct gcaccaccgg caagctgccc gtgccctggc ccaccctcgt 2220

gaccaccctg acctacggcg tgcagtgctt cagccgctac cccgaccaca tgaagcagca 2280

cgacttcttc aagtccgcca tgcccgaagg ctacgtccag gagcgcacca tcttcttcaa 2340

ggacgacggc aactacaaga cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa 2400

ccgcatcgag ctgaagggca tcgacttcaa ggaggacggc aacatcctgg ggcacaagct 2460

ggagtacaac tacaacagcc acaacgtcta tatcatggcc gacaagcaga agaacggcat 2520

caaggtgaac ttcaagatcc gccacaacat cgaggacggc agcgtgcagc tcgccgacca 2580

ctaccagcag aacacccccа tcggcgacgg ccccgtgctg ctgcccgaca accactacct 2640

gagcacccag tccgccctga gcaaagaccc caacgagaag cgcgatcaca tggtcctgct 2700

ggagttcgtg accgccgccg ggatcactct cggcatggac gagctgtaca agtaaaatca 2760

acctctggat tacaaaattt gtgaaagatt gactggtatt cttaactatg ttgctccttt 2820

tacgctatgt ggatacgctg ctttaatgcc tttgtatcat gctattgctt cccgtatggc 2880

tttcattttc tcctccttgt ataaatcctg gttgctgtct ctttatgagg agttgtggcc 2940

cgttgtcagg caacgtggcg tggtgtgcac tgtgtttgct gacgcaaccc ccactggttg 3000

gggcattgcc accacctgtc agctcctttc cgggactttc gctttccccc tccctattgc 3060

cacggcggaa ctcatcgccg cctgccttgc ccgctgctgg acaggggctc ggctgttggg 3120

cactgacaat tccgtggtgt tgtcggggaa atcatcgtcc tttccttggc tgctcgcctg 3180

tgttgccacc tggattctgc gcgggacgtc cttctgctac gtcccttcgg ccctcaatcc 3240

agcggacctt ccttcccgcg gcctgctgcc ggctctgcgg cctcttccgc gtcttcgcct 3300

tcgccctcag acgagtcgga tctccctttg ggccgcctcc ccgcgctcgc tttcttgctg 3360

tccaatttct attaaaggtt cctttgttcc ctaagtccaa ctactaaact gggggatatt 3420

atgaagggcc ttgagcatct ggattctgcc taataaaaaa catttatttt cattgcaagc 3480

tcgctttctt gctgtccaat ttctattaaa ggttcctttg ttccctaagt ccaactacta 3540

aactggggga tattatgaag ggccttgagc atctggattc tgcctaataa aaaacattta 3600

ttttcattgc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3660

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3720

aaaaaaaaaa aactcggaag gacatggtgt ggaaagtccc caggctcccc agcaggcaga 3780

agtatgcaaa gcatgcatct caattagtca gcaaccaggt gtggaaagtc cccaggctcc 3840

ccagcaggca gaagtatgca aagcatgcat ctcaattagt cagcaaccaa attaaagtaa 3900

cccataactt cgtatagcat acattatacg aagttatgaa gttcctattc tctagaaagt 3960

ataggaactt ctagtcacct atttcagcat actacgcgcg tagtatgctg aaataggttt 4020

atcagcacac aatagtccat tatacgcgcg tataatggca attgtgtgct gattgggtta 4080

ctttaatttg gatccgtcga ccgatgccct tgagagcctt caacccagtc agctccttcc 4140

ggtgggcgcg gggcatgact atcgtcgccg cacttatgac tgtcttcttt atcatgcaac 4200

tcgtaggaca ggtgccggca gcgctcttcc gcttcctcgc tcactgactc gctgcgctcg 4260

gtcgttcggc tgcggcgagc ggtatcagct cactcaaagg cggtaatacg gttatccaca 4320

gaatcagggg ataacgcagg aaagaacatg tgagcaaaag gccagcaaaa ggccaggaac 4380

cgtaaaaagg ccgcgttgct ggcgtttttc cataggctcc gccccccctga cgagcatcac 4440

aaaaatcgac gctcaagtca gaggtggcga aacccgacag gactataaag ataccaggcg 4500

tttccccctg gaagctccct cgtgcgctct cctgttccga ccctgccgct taccggatac 4560

ctgtccgcct ttctcccttc gggaagcgtg gcgctttctc atagctcacg ctgtaggtat 4620

ctcagttcgg tgtaggtcgt tcgctccaag ctgggctgtg tgcacgaacc ccccgttcag 4680

cccgaccgct gcgccttatc cggtaactat cgtcttgagt ccaacccggt aagacacgac 4740

ttatcgccac tggcagcagc cactggtaac aggattagca gagcgaggta tgtaggcggt 4800

gctacagagt tcttgaagtg gtggcctaac tacggctaca ctagaagaac agtatttggt 4860

atctgcgctc tgctgaagcc agttaccttc ggaaaaagag ttggtagctc ttgatccggc 4920

aaacaaacca ccgctggtag cggtggtttt tttgtttgca agcagcagat tacgcgcaga 4980

aaaaaaggat ctcaagaaga tcctttgatc ttttctacgg ggtctgacgc tcagtggaac 5040

gaaaactcac gttaagggat tttggtcatg agattatcaa aaaggatctt cacctagatc 5100

cttttaaatt aaaaatgaag ttttaaatca atctaaagta tatatgagta aacttggtct 5160

gacagttacc aatgcttaat cagtgaggca cctatctcag cgatctgtct atttcgttca 5220

tccatagttg cctgactccc cgtcgtgtag ataactacga tacgggaggg cttaccatct 5280

ggccccagtg ctgcaatgat accgcgagac ccacgctcac cggctccaga tttatcagca 5340

ataaaccagc cagccggaag ggccgagcgc agaagtggtc ctgcaacttt atccgcctcc 5400

atccagtcta ttaattgttg ccgggaagct agagtaagta gttcgccagt taatagtttg 5460

cgcaacgttg ttgccattgc tacaggcatc gtggtgtcac gctcgtcgtt tggtatggct 5520

tcattcagct ccggttccca acgatcaagg cgagttacat gatcccccat gttgtgcaaa 5580

aaagcggtta gctccttcgg tcctccgatc gttgtcagaa gtaagttggc cgcagtgtta 5640

tcactcatgg ttatggcagc actgcataat tctcttactg tcatgccatc cgtaagatgc 5700

ttttctgtga ctggtgagta ctcaaccaag tcattctgag aatagtgtat gcggcgaccg 5760

agttgctctt gcccggcgtc aatacgggat aataccgcgc cacatagcag aactttaaaa 5820

gtgctcatca ttggaaaacg ttcttcgggg cgaaaactct caaggatctt accgctgttg 5880

agatccagtt cgatgtaacc cactcgtgca cccaactgat cttcagcatc ttttactttc 5940

accagcgttt ctgggtgagc aaaaacagga aggcaaaatg ccgcaaaaaa gggaataagg 6000

gcgacacgga aatgttgaat actcatactc ttccttttc aatattattg aagcatttat 6060

cagggttatt gtctcatgag cggatacata tttgaatgta tttagaaaaa taaacaaata 6120

ggggttccgc gcacatttcc ccgaaaagtg ccacctgacg cgccctgtag cggcgcatta 6180

agcgcggcgg gtgtggtggt tacgcgcagc gtgaccgcta cacttgccag cgccctagcg 6240

cccgctcctt tcgctttctt cccttccttt ctcgccacgt tcgccggctt tccccgtcaa 6300

gctctaaatc gggggctccc tttagggttc cgatttagtg ctttacggca cctcgacccc 6360

aaaaaacttg attagggtga tggttcacgt agtgggccat cgccctgata gacggttttt 6420

cgcccttga cgttggagtc cacgttcttt aatagtggac tcttgttcca aactggaaca 6480

acactcaacc ctatctcggt ctattctttt gatttataag ggattttgcc gatttcggcc 6540

tattggttaa aaaatgagct gatttaacaa aaatttaacg cgaattttaa caaaatatta 6600

acgcttacaa tttgccattc gccattcagg ctgcgcaact gttgggaagg gcgatcggtg 6660

cgggcctctt cgctattacg ccagcccaag ctaccatgat aagtaagtaa tattaaggta 6720

cgtggaggtt ttacttgctt taaaaaacct cccacacctc cccctgaacc tgaaacataa 6780

aatgaatgca attgttgttg ttaacttgtt tattgcagct tataatggtt acaaataaag 6840

caatagcatc acaaatttca caaataaagc attttttca ctgcattcta gttgtggttt 6900

gtccaaactc atcaatgtat cttatggtac tgtaactgag ctaacataa 6949

<210> 27
<211> 7121
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-UCOE-E1-CMV-UTR1-SecNLuc-2A-eGFP-WPRE-3'UTR[2huBGpA-A120]-SS*

<400> 27
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgcac acgaccacaa ttccactgaa agcattttaa 420

tacggaactt gtcactccca gggagcctcc gctcagccgg cagttggttc atttcaatcc 480

ccacgacaac ccttcaaagt gcagggcaga cagcaggtgg ctctgcccag gcgcctggat 540

cacagcccgg cctgcagccc tcacctgggc gcggggagac cctgaggacg ctcctccagg 600

cggcgctggc cggggcctgc ggacacggac gggcgggctg agctccggga cccctccccg 660

cgccccgcac cccgcacccc gcaccccgca ccccgcaccc ggcgctcacc cgtcccagcc 720

ccgccgcccg cagccccagc tgcaacgcag ccaccgccgc catcgcaccc ggccccgcgg 780

gcgcttccgg gacgcaggag gcatctgcat ccggggcgcc gctgagtccc gcccagagcc 840

ccgcccccgg ctccaggttc tgcgagcggc ttccgccggg ctgctccgcg ggcgcgtcgg 900

ccatgagcga gttgccgggc gacgtgcggg cgtttctgcg ggagcacccg agcctgcggc 960

tccagacgga cgcccgcaag gttcgcagcg cgggagggga acggagtggc ggagaagggc 1020

gcagttggga tgaggggctg aggggagggc aggggagagg agagggcagg ggagagggga 1080

gaggggagag caggagagag gggaaggcag gggagagggc gcggcgggat caggggagga 1140

gagggaaggg actttccggg gcggggcacg tggtgcacgg gactttccgt gcacgtgcac 1200

gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt ccgtgcacga 1260

cattgattat tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca 1320

tatatggagt tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac 1380

gacccccgcc cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact 1440

ttccattgac gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa 1500

gtgtatcata tgccaagtac gccccctatt gacgtcaatg acggtaaatg gcccgcctgg 1560

cattatgccc agtacatgac cttatgggac tttcctactt ggcagtacat ctacgtatta 1620

gtcatcgcta ttaccatggt gatgcggttt tggcagtaca tcaatgggcg tggatagcgg 1680

tttgactcac ggggatttcc aagtctccac cccattgacg tcaatgggag tttgttttgg 1740

caccaaaatc aacgggactt tccaaaatgt cgtaacaact ccgccccatt gacgcaaatg 1800

ggcggtaggc gtgtacggtg ggaggtctat ataagcagag ctctgccttc tccctcctgt 1860

gagtttggta agtcgacggg ccgggcctgg gccgggtccg ggccgggtcg ttggatcccc 1920

actacagccc gatactcaag cttgacgaat tcgagtatcc aaggtagtgg actagtgtga 1980

cgctgctgac ccctttcttt cccttctgca ggttggtgta cagtagcttc caaattgatt 2040

aattcgagcg aacgcgtcgc caccatgaac tccttctcca caagcgcctt cggtccagtt 2100

gccttctccc tgggcctgct cctggtgttg cctgctgcct tccctgcccc agtcttcaca 2160

ctcgaagatt tcgttgggga ctggcgacag acagccggct acaacctgga ccaagtcctt 2220

gaacagggag gtgtgtccag tttgtttcag aatctcgggg tgtccgtaac tccgatccaa 2280

aggattgtcc tgagcggtga aaatgggctg aagatcgaca tccatgtcat catcccgtat 2340

gaaggtctga gcggcgacca aatgggccag atcgaaaaaa tttttaaggt ggtgtaccct 2400

gtggatgatc atcactttaa ggtgatcctg cactatggca cactggtaat cgacggggtt 2460

acgccgaaca tgatcgacta tttcggacgg ccgtatgaag gcatcgccgt gttcgacggc 2520

aaaaagatca ctgtaacagg gaccctgtgg aacggcaaca aaattatcga cgagcgcctg 2580

atcaaccccg acggctccct gctgttccga gtaaccatca acggagtgac cggctggcgg 2640

ctgtgcgaac gcattctggc ggctagcgct actaacttca gcctgctgaa gcaggctgga 2700

gacgtggagg agaaccctgg acctggaagc ggagagggca gaggaagtct gctaacatgc 2760

ggtgacgtcg aggagaatcc tggacctgga tccggaatgg tgagcaaggg cgaggagctg 2820

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 2880

agcgtgtccg gcgagggcga gggcgatgcc acctacggca agctgaccct gaagttcatc 2940

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccaccct gacctacggc 3000

gtgcagtgct tcagccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 3060

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 3120

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 3180

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 3240

cacaacgtct atatcatggc cgacaagcag aagaacggca tcaaggtgaa cttcaagatc 3300

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 3360

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 3420

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 3480

gggatcactc tcggcatgga cgagctgtac aagtaagctc gctttcttgc tgtccaattt 3540

ctattaaagg ttcctttgtt ccctaagtcc aactactaaa ctgggggata ttatgaaggg 3600

ccttgagcat ctggattctg cctaataaaa aacatttatt ttcattgcaa gctcgctttc 3660

ttgctgtcca atttctatta aaggttcctt tgttccctaa gtccaactac taaactgggg 3720

gatattatga agggccttga gcatctggat tctgcctaat aaaaaacatt tattttcatt 3780

gcaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3840

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3900

aaaactcgga aggacatggt gtggaaagtc cccaggctcc ccagcaggca gaagtatgca 3960

aagcatgcat ctcaattagt cagcaaccag gtgtggaaag tccccaggct ccccagcagg 4020

cagaagtatg caaagcatgc atctcaatta gtcagcaacc aaattaaagt aacccataac 4080

ttcgtatagc atacattata cgaagttatg aagttcctat tctctagaaa gtataggaac 4140

ttctagtcac ctatttcagc atactacgcg cgtagtatgc tgaaataggt ttatcagcac 4200

acaatagtcc attatacgcg cgtataatgg caattgtgtg ctgattgggt tactttaatt 4260

tggatccgtc gaccgatgcc cttgagagcc ttcaacccag tcagctcctt ccggtgggcg 4320

cggggcatga ctatcgtcgc cgcacttatg actgtcttct ttatcatgca actcgtagga 4380

caggtgccgg cagcgctctt ccgcttcctc gctcactgac tcgctgcgct cggtcgttcg 4440

gctgcggcga gcggtatcag ctcactcaaa ggcggtaata cggttatcca cagaatcagg 4500

ggataacgca ggaaagaaca tgtgagcaaa aggccagcaa aaggccagga accgtaaaaa 4560

ggccgcgttg ctggcgtttt tccataggct ccgcccccct gacgagcatc acaaaaatcg 4620

acgctcaagt cagaggtggc gaaacccgac aggactataa agataccagg cgtttccccc 4680

tggaagctcc ctcgtgcgct ctcctgttcc gaccctgccg cttaccggat acctgtccgc 4740

ctttctccct tcgggaagcg tggcgctttc tcatagctca cgctgtaggt atctcagttc 4800

ggtgtaggtc gttcgctcca agctgggctg tgtgcacgaa ccccccgttc agcccgaccg 4860

ctgcgcctta tccggtaact atcgtcttga gtccaacccg gtaagacacg acttatcgcc 4920

actggcagca gccactggta acaggattag cagagcgagg tatgtaggcg gtgctacaga 4980

gttcttgaag tggtggccta actacggcta cactagaaga acagtatttg gtatctgcgc 5040

tctgctgaag ccagttacct tcggaaaaag agttggtagc tcttgatccg gcaaacaaac 5100

caccgctggt agcggtggtt tttttgtttg caagcagcag attacgcgca gaaaaaaagg 5160

atctcaagaa gatcctttga tcttttctac ggggtctgac gctcagtgga acgaaaactc 5220

acgttaaggg attttggtca tgagattatc aaaaaggatc ttcacctaga tccttttaaa 5280

ttaaaaatga agttttaaat caatctaaag tatatatgag taaacttggt ctgacagtta 5340

ccaatgctta atcagtgagg cacctatctc agcgatctgt ctatttcgtt catccatagt 5400

tgcctgactc cccgtcgtgt agataactac gatacgggag ggcttaccat ctggccccag 5460

tgctgcaatg ataccgcgag acccacgctc accggctcca gatttatcag caataaacca 5520

gccagccgga agggccgagc gcagaagtgg tcctgcaact ttatccgcct ccatccagtc 5580

tattaattgt tgccgggaag ctagagtaag tagttcgcca gttaatagtt tgcgcaacgt 5640

tgttgccatt gctacaggca tcgtggtgtc acgctcgtcg tttggtatgg cttcattcag 5700

ctccggttcc caacgatcaa ggcgagttac atgatccccc atgttgtgca aaaaagcggt 5760

tagctccttc ggtcctccga tcgttgtcag aagtaagttg gccgcagtgt tatcactcat 5820

ggttatggca gcactgcata attctcttac tgtcatgcca tccgtaagat gcttttctgt 5880

gactggtgag tactcaacca agtcattctg agaatagtgt atgcggcgac cgagttgctc 5940

ttgcccggcg tcaatacggg ataataccgc gccacatagc agaactttaa aagtgctcat 6000

cattggaaaa cgttcttcgg ggcgaaaact ctcaaggatc ttaccgctgt tgagatccag 6060

ttcgatgtaa cccactcgtg cacccaactg atcttcagca tcttttactt tcaccagcgt 6120

ttctgggtga gcaaaaacag gaaggcaaaa tgccgcaaaa aagggaataa gggcgacacg 6180

gaaatgttga atactcatac tcttcctttt tcaatattat tgaagcattt atcagggtta 6240

ttgtctcatg agcggataca tatttgaatg tatttagaaa aataaacaaa taggggttcc 6300

gcgcacattt ccccgaaaag tgccacctga cgcgccctgt agcggcgcat taagcgcggc 6360

gggtgtggtg gttacgcgca gcgtgaccgc tacacttgcc agcgccctag cgcccgctcc 6420

tttcgctttc ttcccttcct ttctcgccac gttcgccggc tttccccgtc aagctctaaa 6480

tcgggggctc cctttagggt tccgatttag tgctttacgg cacctcgacc ccaaaaaact 6540

tgattagggt gatggttcac gtagtgggcc atcgccctga tagacggttt ttcgcccttt 6600

gacgttggag tccacgttct ttaatagtgg actcttgttc caaactggaa caacactcaa 6660

ccctatctcg gtctattctt ttgatttata agggattttg ccgatttcgg cctattggtt 6720

aaaaaatgag ctgatttaac aaaaatttaa cgcgaatttt aacaaaatat taacgcttac 6780

aatttgccat tcgccattca ggctgcgcaa ctgttgggaa gggcgatcgg tgcgggcctc 6840

ttcgctatta cgccagccca agctaccatg ataagtaagt aatattaagg tacgtggagg 6900

ttttacttgc tttaaaaaac ctcccacacc tccccctgaa cctgaaacat aaaatgaatg 6960

caattgttgt tgttaacttg tttattgcag cttataatgg ttacaaataa agcaatagca 7020

tcacaaattt cacaaataaa gcatttttt cactgcattc tagttgtggt ttgtccaaac 7080

tcatcaatgt atcttatggt actgtaactg agctaacata a 7121

<210> 28
<211> 7593
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-E1-CMV-UTR1-SecNLuc-2A-eGFP-huMAR-3'UTR[2huBGpA-A120]-SS*

<400> 28
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacgac attgattatt gactagttat taatagtaat caattacggg 540

gtcattagtt catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc 600

gcctggctga ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat 660

agtaacgcca atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc 720

ccacttggca gtacatcaag tgtatcatat gccaagtacg ccccctattg acgtcaatga 780

cggtaaatgg cccgcctggc attatgccca gtacatgacc ttatgggact ttcctacttg 840

gcagtacatc tacgtattag tcatcgctat taccatggtg atgcggtttt ggcagtacat 900

caatgggcgt ggatagcggt ttgactcacg gggatttcca agtctccacc ccattgacgt 960

caatgggagt ttgttttggc accaaaatca acgggacttt ccaaaatgtc gtaacaactc 1020

cgccccattg acgcaaatgg gcggtaggcg tgtacggtgg gaggtctata taagcagagc 1080

tctgccttct ccctcctgtg agtttggtaa gtcgacgggc cgggcctggg ccgggtccgg 1140

gccgggtcgt tggatcccca ctacagcccg atactcaagc ttgacgaatt cgagtatcca 1200

aggtagtgga ctagtgtgac gctgctgacc cctttctttc ccttctgcag gttggtgtac 1260

agtagcttcc aaattgatta attcgagcga acgcgtcgcc accatgaact ccttctccac 1320

aagcgccttc ggtccagttg ccttctccct gggcctgctc ctggtgttgc ctgctgcctt 1380

ccctgcccca gtcttcacac tcgaagattt cgttggggac tggcgacaga cagccggcta 1440

caacctggac caagtccttg aacagggagg tgtgtccagt ttgtttcaga atctcggggt 1500

gtccgtaact ccgatccaaa ggattgtcct gagcggtgaa aatgggctga agatcgacat 1560

ccatgtcatc atcccgtatg aaggtctgag cggcgaccaa atgggccaga tcgaaaaaat 1620

ttttaaggtg gtgtaccctg tggatgatca tcactttaag gtgatcctgc actatggcac 1680

actggtaatc gacggggtta cgccgaacat gatcgactat ttcggacggc cgtatgaagg 1740

catcgccgtg ttcgacggca aaaagatcac tgtaacaggg accctgtgga acggcaacaa 1800

aattatcgac gagcgcctga tcaaccccga cggctccctg ctgttccgag taaccatcaa 1860

cggagtgacc ggctggcggc tgtgcgaacg cattctggcg gctagcgcta ctaacttcag 1920

cctgctgaag caggctggag acgtggagga gaaccctgga cctggaagcg gagagggcag 1980

aggaagtctg ctaacatgcg gtgacgtcga ggagaatcct ggacctggat ccggaatggt 2040

gagcaagggc gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc tggacggcga 2100

cgtaaacggc cacaagttca gcgtgtccgg cgagggcgag ggcgatgcca cctacggcaa 2160

gctgaccctg aagttcatct gcaccaccgg caagctgccc gtgccctggc ccaccctcgt 2220

gaccaccctg acctacggcg tgcagtgctt cagccgctac cccgaccaca tgaagcagca 2280

cgacttcttc aagtccgcca tgcccgaagg ctacgtccag gagcgcacca tcttcttcaa 2340

ggacgacggc aactacaaga cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa 2400

ccgcatcgag ctgaagggca tcgacttcaa ggaggacggc aacatcctgg ggcacaagct 2460

ggagtacaac tacaacagcc acaacgtcta tatcatggcc gacaagcaga agaacggcat 2520

caaggtgaac ttcaagatcc gccacaacat cgaggacggc agcgtgcagc tcgccgacca 2580

ctaccagcag aacacccccа tcggcgacgg ccccgtgctg ctgcccgaca accactacct 2640

gagcacccag tccgccctga gcaaagaccc caacgagaag cgcgatcaca tggtcctgct 2700

ggagttcgtg accgccgccg ggatcactct cggcatggac gagctgtaca agtaaggatc 2760

ccattctcct tgatgtacta atttttcttt aaaagtgata ataatagctc ccatttagaa 2820

tttttaaata acacaacaaa tgtaaagtaa ctaatgtgtc ctctggatca tggtaagtaa 2880

tgaataaatt taactccctt taccttctcc ctttgctatt ttttccatgc taggatttat 2940

acatttttaa aaaactaaat ctgctatcaa atgacagctt taaatttact ttttaaaatt 3000

tgttattgta tatatttatg gggtataaag tgatgttatg atatatatat acacaatgta 3060

cactgattaa atcaagccaa ttaacatttt atcatctcaa atacttaaca ttttttgtag 3120

tgagaacatt tgaaatttac ttttagcaat ttcaaaacat acattattat tattaactat 3180

agtcaccatg atgtaccata gatctttaaa aacttattct tcctgcctaa ctgaaacttt 3240

gtactctttg actaacatct tttcattccc ccacttccca gcctctggta atcaccatta 3300

cacactctgc ttctatgagt tcaattgctt tagactccac gtaataaatg agatcatgca 3360

gcatttggct ttctgtgcct ggcttatcct tgcttagcat ggtgtcttac aggttcatcc 3420

atgttgcaac aaataacaga atctcattct ttgttaaggc tgaatactat tccattgggt 3480

atatatacca cattttcctt atccattaat ccactgatgg acccttaggt tgttgattcc 3540

atatattggc tattgtaaat agtgcagcaa tgaacatgag agtgcaacta tctcttcaat 3600

gtactgattt cgaatccttc ggatctatct cagaagtgag attgcaggat catataattc 3660

tacttttagt cttttgagga gctccataca gctttccata tggccatact aattacattc 3720

tcatcaacag tgtacaatgg tttccttttc tccacatcct caccaacatt tataattttt 3780

tgtctttttg ataatagcca tctgacaggt gtaaagtgat agctcattgc agttttaatt 3840

tgcatttttt gatgattagt aatgttgaga atttttttcat atatctcttg gccagttgca 3900

tgtcttcttt ggaaaaatgt ctattcagtt cctttgccca ttttttaatt gggatttttg 3960

gtttcttgct attgagttgt ttgaattcgc tcgctttctt gctgtccaat ttctattaaa 4020

ggttcctttg ttccctaagt ccaactacta aactggggga tattatgaag ggccttgagc 4080

atctggattc tgcctaataa aaaacattta ttttcattgc aagctcgctt tcttgctgtc 4140

caatttctat taaaggttcc tttgttccct aagtccaact actaaactgg gggatattat 4200

gaagggcctt gagcatctgg attctgccta ataaaaaaca tttattttca ttgcaaaaaa 4260

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4320

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaactcg 4380

gaaggacatg gtgtggaaag tccccaggct ccccagcagg cagaagtatg caaagcatgc 4440

atctcaatta gtcagcaacc aggtgtggaa agtccccagg ctccccagca ggcagaagta 4500

tgcaaagcat gcatctcaat tagtcagcaa ccaaattaaa gtaacccata acttcgtata 4560

gcatacatta tacgaagtta tgaagttcct attctctaga aagtatagga acttctagtc 4620

acctatttca gcatactacg cgcgtagtat gctgaaatag gtttatcagc acacaatagt 4680

ccattatacg cgcgtataat ggcaattgtg tgctgattgg gttactttaa tttggatccg 4740

tcgaccgatg cccttgagag ccttcaaccc agtcagctcc ttccggtggg cgcggggcat 4800

gactatcgtc gccgcactta tgactgtctt ctttatcatg caactcgtag gacaggtgcc 4860

ggcagcgctc ttccgcttcc tcgctcactg actcgctgcg ctcggtcgtt cggctgcggc 4920

gagcggtatc agctcactca aaggcggtaa tacggttatc cacagaatca ggggataacg 4980

caggaaagaa catgtgagca aaaggccagc aaaaggccag gaaccgtaaa aaggccgcgt 5040

tgctggcgtt tttccatagg ctccgccccc ctgacgagca tcacaaaaat cgacgctcaa 5100

gtcagaggtg gcgaaacccg acaggactat aaagatacca ggcgtttccc cctggaagct 5160

ccctcgtgcg ctctcctgtt ccgaccctgc cgcttaccgg atacctgtcc gcctttctcc 5220

cttcgggaag cgtggcgctt tctcatagct cacgctgtag gtatctcagt tcggtgtagg 5280

tcgttcgctc caagctgggc tgtgtgcacg aacccccccgt tcagcccgac cgctgcgcct 5340

tatccggtaa ctatcgtctt gagtccaacc cggtaagaca cgacttatcg ccactggcag 5400

cagccactgg taacaggatt agcagagcga ggtatgtagg cggtgctaca gagttcttga 5460

agtggtggcc taactacggc tacactagaa gaacagtatt tggtatctgc gctctgctga 5520

agccagttac cttcggaaaa agagttggta gctcttgatc cggcaaacaa accaccgctg 5580

gtagcggtgg ttttttgtt tgcaagcagc agattacgcg cagaaaaaaa ggatctcaag 5640

aagatccttt gatcttttct acggggtctg acgctcagtg gaacgaaaac tcacgttaag 5700

ggattttggt catgagatta tcaaaaagga tcttcaccta gatcctttta aattaaaaat 5760

gaagttttaa atcaatctaa agtatatatg agtaaacttg gtctgacagt taccaatgct 5820

taatcagtga ggcacctatc tcagcgatct gtctatttcg ttcatccata gttgcctgac 5880

tccccgtcgt gtagataact acgatacggg agggcttacc atctggcccc agtgctgcaa 5940

tgataccgcg agacccacgc tcaccggctc cagatttatc agcaataaac cagccagccg 6000

gaagggccga gcgcagaagt ggtcctgcaa ctttatccgc ctccatccag tctattaatt 6060

gttgccggga agctagagta agtagttcgc cagttaatag tttgcgcaac gttgttgcca 6120

ttgctacagg catcgtggtg tcacgctcgt cgtttggtat ggcttcattc agctccggtt 6180

cccaacgatc aaggcgagtt acatgatccc ccatgttgtg caaaaaagcg gttagctcct 6240

tcggtcctcc gatcgttgtc agaagtaagt tggccgcagt gttatcactc atggttatgg 6300

cagcactgca taattctctt actgtcatgc catccgtaag atgcttttct gtgactggtg 6360

agtactcaac caagtcattc tgagaatagt gtatgcggcg accgagttgc tcttgcccgg 6420

cgtcaatacg ggataatacc gcgccacata gcagaacttt aaaagtgctc atcattggaa 6480

aacgttcttc ggggcgaaaa ctctcaagga tcttaccgct gttgagatcc agttcgatgt 6540

aacccactcg tgcacccaac tgatcttcag catcttttac tttcaccagc gtttctgggt 6600

gagcaaaaac aggaaggcaa aatgccgcaa aaaagggaat aagggcgaca cggaaatgtt 6660

gaatactcat actcttcctt tttcaatatt attgaagcat ttatcagggt tattgtctca 6720

tgagcggata catatttgaa tgtatttaga aaaataaaca aataggggtt ccgcgcacat 6780

ttccccgaaa agtgccacct gacgcgccct gtagcggcgc attaagcgcg gcgggtgtgg 6840

tggttacgcg cagcgtgacc gctacacttg ccagcgccct agcgcccgct cctttcgctt 6900

tcttcccttc ctttctcgcc acgttcgccg gctttccccg tcaagctcta aatcgggggc 6960

tcccttttagg gttccgattt agtgctttac ggcacctcga ccccaaaaaa cttgattagg 7020

gtgatggttc acgtagtggg ccatcgccct gatagacggt ttttcgccct ttgacgttgg 7080

agtccacgtt ctttaatagt ggactcttgt tccaaactgg aacaacactc aaccctatct 7140

cggtctattc ttttgattta taagggattt tgccgatttc ggcctattgg ttaaaaaatg 7200

agctgattta acaaaaattt aacgcgaatt ttaacaaaat attaacgctt acaatttgcc 7260

attcgccatt caggctgcgc aactgttggg aagggcgatc ggtgcgggcc tcttcgctat 7320

tacgccagcc caagctacca tgataagtaa gtaatattaa ggtacgtgga ggttttactt 7380

gctttaaaaa acctcccaca cctccccctg aacctgaaac ataaaatgaa tgcaattgtt 7440

gttgttaact tgtttattgc agcttataat ggttacaaat aaagcaatag catcacaaat 7500

ttcacaaata aagcattttt ttcactgcat tctagttgtg gtttgtccaa actcatcaat 7560

gtatcttatg gtactgtaac tgagctaaca taa 7593

<210> 29
<211> 8354
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-UCOE-E1-CMV-UTR1-SecNLuc-2A-eGFP-huMAR-3'UTR[2huBGpA-A120]-SS*

<400> 29
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgcac acgaccacaa ttccactgaa agcattttaa 420

tacggaactt gtcactccca gggagcctcc gctcagccgg cagttggttc atttcaatcc 480

ccacgacaac ccttcaaagt gcagggcaga cagcaggtgg ctctgcccag gcgcctggat 540

cacagcccgg cctgcagccc tcacctgggc gcggggagac cctgaggacg ctcctccagg 600

cggcgctggc cggggcctgc ggacacggac gggcgggctg agctccggga cccctccccg 660

cgccccgcac cccgcacccc gcaccccgca ccccgcaccc ggcgctcacc cgtcccagcc 720

ccgccgcccg cagccccagc tgcaacgcag ccaccgccgc catcgcaccc ggccccgcgg 780

gcgcttccgg gacgcaggag gcatctgcat ccggggcgcc gctgagtccc gcccagagcc 840

ccgcccccgg ctccaggttc tgcgagcggc ttccgccggg ctgctccgcg ggcgcgtcgg 900

ccatgagcga gttgccgggc gacgtgcggg cgtttctgcg ggagcacccg agcctgcggc 960

tccagacgga cgcccgcaag gttcgcagcg cgggagggga acggagtggc ggagaagggc 1020

gcagttggga tgaggggctg aggggagggc aggggagagg agagggcagg ggagagggga 1080

gaggggagag caggagagag gggaaggcag gggagagggc gcggcgggat caggggagga 1140

gagggaaggg actttccggg gcggggcacg tggtgcacgg gactttccgt gcacgtgcac 1200

gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt ccgtgcacga 1260

cattgattat tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca 1320

tatatggagt tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac 1380

gacccccgcc cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact 1440

ttccattgac gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa 1500

gtgtatcata tgccaagtac gccccctatt gacgtcaatg acggtaaatg gcccgcctgg 1560

cattatgccc agtacatgac cttatgggac tttcctactt ggcagtacat ctacgtatta 1620

gtcatcgcta ttaccatggt gatgcggttt tggcagtaca tcaatgggcg tggatagcgg 1680

tttgactcac ggggatttcc aagtctccac cccattgacg tcaatgggag tttgttttgg 1740

caccaaaatc aacgggactt tccaaaatgt cgtaacaact ccgccccatt gacgcaaatg 1800

ggcggtaggc gtgtacggtg ggaggtctat ataagcagag ctctgccttc tccctcctgt 1860

gagtttggta agtcgacggg ccgggcctgg gccgggtccg ggccgggtcg ttggatcccc 1920

actacagccc gatactcaag cttgacgaat tcgagtatcc aaggtagtgg actagtgtga 1980

cgctgctgac ccctttcttt cccttctgca ggttggtgta cagtagcttc caaattgatt 2040

aattcgagcg aacgcgtcgc caccatgaac tccttctcca caagcgcctt cggtccagtt 2100

gccttctccc tgggcctgct cctggtgttg cctgctgcct tccctgcccc agtcttcaca 2160

ctcgaagatt tcgttgggga ctggcgacag acagccggct acaacctgga ccaagtcctt 2220

gaacagggag gtgtgtccag tttgtttcag aatctcgggg tgtccgtaac tccgatccaa 2280

aggattgtcc tgagcggtga aaatgggctg aagatcgaca tccatgtcat catcccgtat 2340

gaaggtctga gcggcgacca aatgggccag atcgaaaaaa tttttaaggt ggtgtaccct 2400

gtggatgatc atcactttaa ggtgatcctg cactatggca cactggtaat cgacggggtt 2460

acgccgaaca tgatcgacta tttcggacgg ccgtatgaag gcatcgccgt gttcgacggc 2520

aaaaagatca ctgtaacagg gaccctgtgg aacggcaaca aaattatcga cgagcgcctg 2580

atcaaccccg acggctccct gctgttccga gtaaccatca acggagtgac cggctggcgg 2640

ctgtgcgaac gcattctggc ggctagcgct actaacttca gcctgctgaa gcaggctgga 2700

gacgtggagg agaaccctgg acctggaagc ggagagggca gaggaagtct gctaacatgc 2760

ggtgacgtcg aggagaatcc tggacctgga tccggaatgg tgagcaaggg cgaggagctg 2820

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 2880

agcgtgtccg gcgagggcga gggcgatgcc acctacggca agctgaccct gaagttcatc 2940

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccaccct gacctacggc 3000

gtgcagtgct tcagccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 3060

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 3120

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 3180

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 3240

cacaacgtct atatcatggc cgacaagcag aagaacggca tcaaggtgaa cttcaagatc 3300

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 3360

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 3420

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 3480

gggatcactc tcggcatgga cgagctgtac aagtaaggat cccattctcc ttgatgtact 3540

aatttttctt taaaagtgat aataatagct cccatttaga atttttaaat aacacaacaa 3600

atgtaaagta actaatgtgt cctctggatc atggtaagta atgaataaat ttaactccct 3660

ttaccttctc cctttgctat tttttccatg ctaggattta tacatttta aaaaactaaa 3720

tctgctatca aatgacagct ttaaatttac tttttaaaat ttgttattgt atatatttat 3780

ggggtataaa gtgatgttat gatatatata tacacaatgt acactgatta aatcaagcca 3840

attaacattt tatcatctca aatacttaac atttttgta gtgagaacat ttgaaattta 3900

cttttagcaa tttcaaaaca tacattatta ttattaacta tagtcaccat gatgtaccat 3960

agatctttaa aaacttattc ttcctgccta actgaaactt tgtactcttt gactaacatc 4020

ttttcattcc cccacttccc agcctctggt aatcaccatt acacactctg cttctatgag 4080

ttcaattgct ttagactcca cgtaataaat gagatcatgc agcatttggc tttctgtgcc 4140

tggcttatcc ttgcttagca tggtgtctta caggttcatc catgttgcaa caaataacag 4200

aatctcattc tttgttaagg ctgaatacta ttccattggg tatatatacc acattttcct 4260

tatccattaa tccactgatg gacccttagg ttgttgattc catatattgg ctattgtaaa 4320

tagtgcagca atgaacatga gagtgcaact atctcttcaa tgtactgatt tcgaatcctt 4380

cggatctatc tcagaagtga gattgcagga tcatataatt ctacttttag tcttttgagg 4440

agctccatac agctttccat atggccatac taattacatt ctcatcaaca gtgtacaatg 4500

gtttcctttt ctccacatcc tcaccaacat ttataatttt ttgtcttttt gataatagcc 4560

atctgacagg tgtaaagtga tagctcattg cagttttaat ttgcattttt tgatgattag 4620

taatgttgag aatttttca tatatctctt ggccagttgc atgtcttctt tggaaaaatg 4680

tctattcagt tcctttgccc atttttaat tgggattttt ggtttcttgc tattgagttg 4740

tttgaattcg ctcgctttct tgctgtccaa tttctattaa aggttccttt gttccctaag 4800

tccaactact aaactggggg atattatgaa gggccttgag catctggatt ctgcctaata 4860

aaaaacattt attttcattg caagctcgct ttcttgctgt ccaatttcta ttaaaggttc 4920

ctttgttccc taagtccaac tactaaactg ggggatatta tgaagggcct tgagcatctg 4980

gattctgcct aataaaaaac atttattttc attgcaaaaa aaaaaaaaaa aaaaaaaaaa 5040

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 5100

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaactc ggaaggacat ggtgtggaaa 5160

gtccccaggc tccccagcag gcagaagtat gcaaagcatg catctcaatt agtcagcaac 5220

caggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca tgcatctcaa 5280

ttagtcagca accaaattaa agtaacccat aacttcgtat agcatacatt atacgaagtt 5340

atgaagttcc tattctctag aaagtatagg aacttctagt cacctatttc agcatactac 5400

gcgcgtagta tgctgaaata ggtttatcag cacacaatag tccattatac gcgcgtataa 5460

tggcaattgt gtgctgattg ggttacttta atttggatcc gtcgaccgat gcccttgaga 5520

gccttcaacc cagtcagctc cttccggtgg gcgcggggca tgactatcgt cgccgcactt 5580

atgactgtct tctttatcat gcaactcgta ggacaggtgc cggcagcgct cttccgcttc 5640

ctcgctcact gactcgctgc gctcggtcgt tcggctgcgg cgagcggtat cagctcactc 5700

aaaggcggta atacggttat ccacagaatc aggggataac gcaggaaaga acatgtgagc 5760

aaaaggccag caaaaggcca ggaaccgtaa aaaggccgcg ttgctggcgt ttttccatag 5820

gctccgcccc cctgacgagc atcacaaaaa tcgacgctca agtcagaggt ggcgaaaccc 5880

gacaggacta taaagatacc aggcgtttcc ccctggaagc tccctcgtgc gctctcctgt 5940

tccgaccctg ccgcttaccg gatacctgtc cgcctttctc ccttcgggaa gcgtggcgct 6000

ttctcatagc tcacgctgta ggtatctcag ttcggtgtag gtcgttcgct ccaagctggg 6060

ctgtgtgcac gaacccccg ttcagcccga ccgctgcgcc ttatccggta actatcgtct 6120

tgagtccaac ccggtaagac acgacttatc gccactggca gcagccactg gtaacaggat 6180

tagcagagcg aggtatgtag gcggtgctac agagttcttg aagtggtggc ctaactacgg 6240

ctacactaga agaacagtat ttggtatctg cgctctgctg aagccagtta ccttcggaaa 6300

aagagttggt agctcttgat ccggcaaaca aaccaccgct ggtagcggtg gttttttgt 6360

ttgcaagcag cagattacgc gcagaaaaaa aggatctcaa gaagatcctt tgatcttttc 6420

tacggggtct gacgctcagt ggaacgaaaa ctcacgttaa gggattttgg tcatgagatt 6480

atcaaaaagg atcttcacct agatcctttt aaattaaaaa tgaagtttta aatcaatcta 6540

aagtatatat gagtaaactt ggtctgacag ttaccaatgc ttaatcagtg aggcacctat 6600

ctcagcgatc tgtctatttc gttcatccat agttgcctga ctccccgtcg tgtagataac 6660

tacgatacgg gagggcttac catctggccc cagtgctgca atgataccgc gagacccacg 6720

ctcaccggct ccagatttat cagcaataaa ccagccagcc ggaagggccg agcgcagaag 6780

tggtcctgca actttatccg cctccatcca gtctattaat tgttgccggg aagctagagt 6840

aagtagttcg ccagttaata gtttgcgcaa cgttgttgcc attgctacag gcatcgtggt 6900

gtcacgctcg tcgtttggta tggcttcatt cagctccggt tcccaacgat caaggcgagt 6960

tacatgatcc cccatgttgt gcaaaaaagc ggttagctcc ttcggtcctc cgatcgttgt 7020

cagaagtaag ttggccgcag tgttatcact catggttatg gcagcactgc ataattctct 7080

tactgtcatg ccatccgtaa gatgcttttc tgtgactggt gagtactcaa ccaagtcatt 7140

ctgagaatag tgtatgcggc gaccgagttg ctcttgcccg gcgtcaatac gggataatac 7200

cgcgccacat agcagaactt taaaagtgct catcattgga aaacgttctt cggggcgaaa 7260

actctcaagg atcttaccgc tgttgagatc cagttcgatg taacccactc gtgcacccaa 7320

ctgatcttca gcatctttta ctttcaccag cgtttctggg tgagcaaaaa caggaaggca 7380

aaatgccgca aaaaagggaa taagggcgac acggaaatgt tgaatactca tactcttcct 7440

ttttcaatat tattgaagca tttatcaggg ttattgtctc atgagcggat acatatttga 7500

atgtatttag aaaaataaac aaataggggt tccgcgcaca tttccccgaa aagtgccacc 7560

tgacgcgccc tgtagcggcg cattaagcgc ggcgggtgtg gtggttacgc gcagcgtgac 7620

cgctacactt gccagcgccc tagcgcccgc tcctttcgct ttcttccctt cctttctcgc 7680

cacgttcgcc ggctttcccc gtcaagctct aaatcggggg ctccctttag ggttccgatt 7740

tagtgcttta cggcacctcg accccaaaaa acttgattag ggtgatggtt cacgtagtgg 7800

gccatcgccc tgatagacgg tttttcgccc tttgacgttg gagtccacgt tctttaatag 7860

tggactcttg ttccaaactg gaacaacact caaccctatc tcggtctatt cttttgattt 7920

ataagggatt ttgccgattt cggcctattg gttaaaaaat gagctgattt aacaaaaatt 7980

taacgcgaat tttaacaaaa tattaacgct tacaatttgc cattcgccat tcaggctgcg 8040

caactgttgg gaagggcgat cggtgcgggc ctcttcgcta ttacgccagc ccaagctacc 8100

atgataagta agtaatatta aggtacgtgg aggttttact tgctttaaaa aacctcccac 8160

acctcccccc gaacctgaaa cataaaatga atgcaattgt tgttgttaac ttgtttattg 8220

cagcttataa tggttacaaa taaagcaata gcatcacaaa tttcacaaat aaagcatttt 8280

tttcactgca ttctagttgt ggtttgtcca aactcatcaa tgtatcttat ggtactgtaa 8340

ctgagctaac ataa 8354

<210> 30
<211> 7710
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-UCOE-E1-CMV-UTR1-SecNLuc-2A-eGFP-WPRE-3'UTR[2huBGpA-A120]-SS*

<400> 30
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgcac acgaccacaa ttccactgaa agcattttaa 420

tacggaactt gtcactccca gggagcctcc gctcagccgg cagttggttc atttcaatcc 480

ccacgacaac ccttcaaagt gcagggcaga cagcaggtgg ctctgcccag gcgcctggat 540

cacagcccgg cctgcagccc tcacctgggc gcggggagac cctgaggacg ctcctccagg 600

cggcgctggc cggggcctgc ggacacggac gggcgggctg agctccggga cccctccccg 660

cgccccgcac cccgcacccc gcaccccgca ccccgcaccc ggcgctcacc cgtcccagcc 720

ccgccgcccg cagccccagc tgcaacgcag ccaccgccgc catcgcaccc ggccccgcgg 780

gcgcttccgg gacgcaggag gcatctgcat ccggggcgcc gctgagtccc gcccagagcc 840

ccgcccccgg ctccaggttc tgcgagcggc ttccgccggg ctgctccgcg ggcgcgtcgg 900

ccatgagcga gttgccgggc gacgtgcggg cgtttctgcg ggagcacccg agcctgcggc 960

tccagacgga cgcccgcaag gttcgcagcg cgggagggga acggagtggc ggagaagggc 1020

gcagttggga tgaggggctg aggggagggc aggggagagg agagggcagg ggagagggga 1080

gaggggagag caggagagag gggaaggcag gggagagggc gcggcgggat caggggagga 1140

gagggaaggg actttccggg gcggggcacg tggtgcacgg gactttccgt gcacgtgcac 1200

gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt ccgtgcacga 1260

cattgattat tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca 1320

tatatggagt tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac 1380

gacccccgcc cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact 1440

ttccattgac gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa 1500

gtgtatcata tgccaagtac gccccctatt gacgtcaatg acggtaaatg gcccgcctgg 1560

cattatgccc agtacatgac cttatgggac tttcctactt ggcagtacat ctacgtatta 1620

gtcatcgcta ttaccatggt gatgcggttt tggcagtaca tcaatgggcg tggatagcgg 1680

tttgactcac ggggatttcc aagtctccac cccattgacg tcaatgggag tttgttttgg 1740

caccaaaatc aacgggactt tccaaaatgt cgtaacaact ccgccccatt gacgcaaatg 1800

ggcggtaggc gtgtacggtg ggaggtctat ataagcagag ctctgccttc tccctcctgt 1860

gagtttggta agtcgacggg ccgggcctgg gccgggtccg ggccgggtcg ttggatcccc 1920

actacagccc gatactcaag cttgacgaat tcgagtatcc aaggtagtgg actagtgtga 1980

cgctgctgac ccctttcttt cccttctgca ggttggtgta cagtagcttc caaattgatt 2040

aattcgagcg aacgcgtcgc caccatgaac tccttctcca caagcgcctt cggtccagtt 2100

gccttctccc tgggcctgct cctggtgttg cctgctgcct tccctgcccc agtcttcaca 2160

ctcgaagatt tcgttgggga ctggcgacag acagccggct acaacctgga ccaagtcctt 2220

gaacagggag gtgtgtccag tttgtttcag aatctcgggg tgtccgtaac tccgatccaa 2280

aggattgtcc tgagcggtga aaatgggctg aagatcgaca tccatgtcat catcccgtat 2340

gaaggtctga gcggcgacca aatgggccag atcgaaaaaa tttttaaggt ggtgtaccct 2400

gtggatgatc atcactttaa ggtgatcctg cactatggca cactggtaat cgacggggtt 2460

acgccgaaca tgatcgacta tttcggacgg ccgtatgaag gcatcgccgt gttcgacggc 2520

aaaaagatca ctgtaacagg gaccctgtgg aacggcaaca aaattatcga cgagcgcctg 2580

atcaaccccg acggctccct gctgttccga gtaaccatca acggagtgac cggctggcgg 2640

ctgtgcgaac gcattctggc ggctagcgct actaacttca gcctgctgaa gcaggctgga 2700

gacgtggagg agaaccctgg acctggaagc ggagagggca gaggaagtct gctaacatgc 2760

ggtgacgtcg aggagaatcc tggacctgga tccggaatgg tgagcaaggg cgaggagctg 2820

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 2880

agcgtgtccg gcgagggcga gggcgatgcc acctacggca agctgaccct gaagttcatc 2940

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccaccct gacctacggc 3000

gtgcagtgct tcagccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 3060

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 3120

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 3180

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 3240

cacaacgtct atatcatggc cgacaagcag aagaacggca tcaaggtgaa cttcaagatc 3300

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 3360

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 3420

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 3480

gggatcactc tcggcatgga cgagctgtac aagtaaaatc aacctctgga ttacaaaatt 3540

tgtgaaagat tgactggtat tcttaactat gttgctcctt ttacgctatg tggatacgct 3600

gctttaatgc ctttgtatca tgctattgct tcccgtatgg ctttcatttt ctcctccttg 3660

tataaatcct ggttgctgtc tctttatgag gagttgtggc ccgttgtcag gcaacgtggc 3720

gtggtgtgca ctgtgtttgc tgacgcaacc cccactggtt ggggcattgc caccacctgt 3780

cagctccttt ccgggacttt cgctttcccc ctccctattg ccacggcgga actcatcgcc 3840

gcctgccttg cccgctgctg gacaggggct cggctgttgg gcactgacaa ttccgtggtg 3900

ttgtcgggga aatcatcgtc ctttccttgg ctgctcgcct gtgttgccac ctggattctg 3960

cgcgggacgt ccttctgcta cgtcccttcg gccctcaatc cagcggacct tccttcccgc 4020

ggcctgctgc cggctctgcg gcctcttccg cgtcttcgcc ttcgccctca gacgagtcgg 4080

atctcccttt gggccgcctc cccgcgctcg ctttcttgct gtccaatttc tattaaaggt 4140

tcctttgttc cctaagtcca actactaaac tgggggatat tatgaagggc cttgagcatc 4200

tggattctgc ctaataaaaa acatttattt tcattgcaag ctcgctttct tgctgtccaa 4260

tttctattaa aggttccttt gttccctaag tccaactact aaactggggg atattatgaa 4320

gggccttgag catctggatt ctgcctaata aaaaacattt attttcattg caaaaaaaaa 4380

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4440

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaactcggaa 4500

ggacatggtg tggaaagtcc ccaggctccc cagcaggcag aagtatgcaa agcatgcatc 4560

tcaattagtc agcaaccagg tgtggaaagt ccccaggctc cccagcaggc agaagtatgc 4620

aaagcatgca tctcaattag tcagcaacca aattaaagta acccataact tcgtatagca 4680

tacattatac gaagttatga agttcctatt ctctagaaag tataggaact tctagtcacc 4740

tatttcagca tactacgcgc gtagtatgct gaaataggtt tatcagcaca caatagtcca 4800

ttatacgcgc gtataatggc aattgtgtgc tgattgggtt actttaattt ggatccgtcg 4860

accgatgccc ttgagagcct tcaacccagt cagctccttc cggtgggcgc ggggcatgac 4920

tatcgtcgcc gcacttatga ctgtcttctt tatcatgcaa ctcgtaggac aggtgccggc 4980

agcgctcttc cgcttcctcg ctcactgact cgctgcgctc ggtcgttcgg ctgcggcgag 5040

cggtatcagc tcactcaaag gcggtaatac ggttatccac agaatcaggg gataacgcag 5100

gaaagaacat gtgagcaaaa ggccagcaaa aggccaggaa ccgtaaaaag gccgcgttgc 5160

tggcgttttt ccataggctc cgccccccctg acgagcatca caaaaatcga cgctcaagtc 5220

agaggtggcg aaacccgaca ggactataaa gataccaggc gtttcccct ggaagctccc 5280

tcgtgcgctc tcctgttccg accctgccgc ttaccggata cctgtccgcc tttctccctt 5340

cgggaagcgt ggcgctttct catagctcac gctgtaggta tctcagttcg gtgtaggtcg 5400

ttcgctccaa gctgggctgt gtgcacgaac cccccgttca gcccgaccgc tgcgccttat 5460

ccggtaacta tcgtcttgag tccaacccgg taagacacga cttatcgcca ctggcagcag 5520

ccactggtaa caggattagc agagcgaggt atgtaggcgg tgctacagag ttcttgaagt 5580

ggtggcctaa ctacggctac actagaagaa cagtatttgg tatctgcgct ctgctgaagc 5640

cagttacctt cggaaaaaga gttggtagct cttgatccgg caaacaaacc accgctggta 5700

gcggtggttt ttttgtttgc aagcagcaga ttacgcgcag aaaaaaagga tctcaagaag 5760

atcctttgat cttttctacg gggtctgacg ctcagtggaa cgaaaactca cgttaaggga 5820

ttttggtcat gagattatca aaaaggatct tcacctagat ccttttaaat taaaaatgaa 5880

gttttaaatc aatctaaagt atatatgagt aaacttggtc tgacagttac caatgcttaa 5940

tcagtgaggc acctatctca gcgatctgtc tatttcgttc atccatagtt gcctgactcc 6000

ccgtcgtgta gataactacg atacgggagg gcttaccatc tggccccagt gctgcaatga 6060

taccgcgaga cccacgctca ccggctccag atttatcagc aataaaccag ccagccggaa 6120

gggccgagcg cagaagtggt cctgcaactt tatccgcctc catccagtct attaattgtt 6180

gccgggaagc tagagtaagt agttcgccag ttaatagttt gcgcaacgtt gttgccattg 6240

ctacaggcat cgtggtgtca cgctcgtcgt ttggtatggc ttcattcagc tccggttccc 6300

aacgatcaag gcgagttaca tgatccccca tgttgtgcaa aaaagcggtt agctccttcg 6360

gtcctccgat cgttgtcaga agtaagttgg ccgcagtgtt atcactcatg gttatggcag 6420

cactgcataa ttctcttact gtcatgccat ccgtaagatg cttttctgtg actggtgagt 6480

actcaaccaa gtcattctga gaatagtgta tgcggcgacc gagttgctct tgcccggcgt 6540

caatacggga taataccgcg ccacatagca gaactttaaa agtgctcatc attggaaaac 6600

gttcttcggg gcgaaaactc tcaaggatct taccgctgtt gagatccagt tcgatgtaac 6660

ccactcgtgc acccaactga tcttcagcat cttttacttt caccagcgtt tctgggtgag 6720

caaaaacagg aaggcaaaat gccgcaaaaa agggaataag ggcgacacgg aaatgttgaa 6780

tactcatact cttccttttt caatattatt gaagcattta tcagggttat tgtctcatga 6840

gcggatacat atttgaatgt atttagaaaa ataaacaaat aggggttccg cgcacatttc 6900

cccgaaaagt gccacctgac gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg 6960

ttacgcgcag cgtgaccgct acacttgcca gcgccctagc gcccgctcct ttcgctttct 7020

tcccttcctt tctcgccacg ttcgccggct ttccccgtca agctctaaat cgggggctcc 7080

ctttagggtt ccgatttagt gctttacggc acctcgaccc caaaaaactt gattagggtg 7140

atggttcacg tagtgggcca tcgccctgat agacggtttt tcgcccttg acgttggagt 7200

ccacgttctt taatagtgga ctcttgttcc aaactggaac aacactcaac cctatctcgg 7260

tctattcttt tgatttataa gggattttgc cgatttcggc ctattggtta aaaaatgagc 7320

tgatttaaca aaaatttaac gcgaatttta acaaaatatt aacgcttaca atttgccatt 7380

cgccattcag gctgcgcaac tgttgggaag ggcgatcggt gcgggcctct tcgctattac 7440

gccagcccaa gctaccatga taagtaagta atattaaggt acgtggaggt tttacttgct 7500

ttaaaaaacc tcccacacct ccccctgaac ctgaaacata aaatgaatgc aattgttgtt 7560

gttaacttgt ttattgcagc ttataatggt tacaaataaa gcaatagcat cacaaatttc 7620

acaaataaag catttttttc actgcattct agttgtggtt tgtccaaact catcaatgta 7680

tcttatggta ctgtaactga gctaacataa 7710

<210> 31
<211> 8182
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-E1-CMV-UTR1-SecNLuc-2A-eGFP-MAR-WPRE-3'UTR[2huBGpA-A120]-SS*

<400> 31
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacgac attgattatt gactagttat taatagtaat caattacggg 540

gtcattagtt catagcccat atatggagtt ccgcgttaca taacttacgg taaatggccc 600

gcctggctga ccgcccaacg acccccgccc attgacgtca ataatgacgt atgttcccat 660

agtaacgcca atagggactt tccattgacg tcaatgggtg gagtatttac ggtaaactgc 720

ccacttggca gtacatcaag tgtatcatat gccaagtacg ccccctattg acgtcaatga 780

cggtaaatgg cccgcctggc attatgccca gtacatgacc ttatgggact ttcctacttg 840

gcagtacatc tacgtattag tcatcgctat taccatggtg atgcggtttt ggcagtacat 900

caatgggcgt ggatagcggt ttgactcacg gggatttcca agtctccacc ccattgacgt 960

caatgggagt ttgttttggc accaaaatca acgggacttt ccaaaatgtc gtaacaactc 1020

cgccccattg acgcaaatgg gcggtaggcg tgtacggtgg gaggtctata taagcagagc 1080

tctgccttct ccctcctgtg agtttggtaa gtcgacgggc cgggcctggg ccgggtccgg 1140

gccgggtcgt tggatcccca ctacagcccg atactcaagc ttgacgaatt cgagtatcca 1200

aggtagtgga ctagtgtgac gctgctgacc cctttctttc ccttctgcag gttggtgtac 1260

agtagcttcc aaattgatta attcgagcga acgcgtcgcc accatgaact ccttctccac 1320

aagcgccttc ggtccagttg ccttctccct gggcctgctc ctggtgttgc ctgctgcctt 1380

ccctgcccca gtcttcacac tcgaagattt cgttggggac tggcgacaga cagccggcta 1440

caacctggac caagtccttg aacagggagg tgtgtccagt ttgtttcaga atctcggggt 1500

gtccgtaact ccgatccaaa ggattgtcct gagcggtgaa aatgggctga agatcgacat 1560

ccatgtcatc atcccgtatg aaggtctgag cggcgaccaa atgggccaga tcgaaaaaat 1620

ttttaaggtg gtgtaccctg tggatgatca tcactttaag gtgatcctgc actatggcac 1680

actggtaatc gacggggtta cgccgaacat gatcgactat ttcggacggc cgtatgaagg 1740

catcgccgtg ttcgacggca aaaagatcac tgtaacaggg accctgtgga acggcaacaa 1800

aattatcgac gagcgcctga tcaaccccga cggctccctg ctgttccgag taaccatcaa 1860

cggagtgacc ggctggcggc tgtgcgaacg cattctggcg gctagcgcta ctaacttcag 1920

cctgctgaag caggctggag acgtggagga gaaccctgga cctggaagcg gagagggcag 1980

aggaagtctg ctaacatgcg gtgacgtcga ggagaatcct ggacctggat ccggaatggt 2040

gagcaagggc gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc tggacggcga 2100

cgtaaacggc cacaagttca gcgtgtccgg cgagggcgag ggcgatgcca cctacggcaa 2160

gctgaccctg aagttcatct gcaccaccgg caagctgccc gtgccctggc ccaccctcgt 2220

gaccaccctg acctacggcg tgcagtgctt cagccgctac cccgaccaca tgaagcagca 2280

cgacttcttc aagtccgcca tgcccgaagg ctacgtccag gagcgcacca tcttcttcaa 2340

ggacgacggc aactacaaga cccgcgccga ggtgaagttc gagggcgaca ccctggtgaa 2400

ccgcatcgag ctgaagggca tcgacttcaa ggaggacggc aacatcctgg ggcacaagct 2460

ggagtacaac tacaacagcc acaacgtcta tatcatggcc gacaagcaga agaacggcat 2520

caaggtgaac ttcaagatcc gccacaacat cgaggacggc agcgtgcagc tcgccgacca 2580

ctaccagcag aacaccccca tcggcgacgg ccccgtgctg ctgcccgaca accactacct 2640

gagcacccag tccgccctga gcaaagaccc caacgagaag cgcgatcaca tggtcctgct 2700

ggagttcgtg accgccgccg ggatcactct cggcatggac gagctgtaca agtaaggatc 2760

ccattctcct tgatgtacta atttttcttt aaaagtgata ataatagctc ccatttagaa 2820

tttttaaata acacaacaaa tgtaaagtaa ctaatgtgtc ctctggatca tggtaagtaa 2880

tgaataaatt taactccctt taccttctcc ctttgctatt ttttccatgc taggatttat 2940

acatttttaa aaaactaaat ctgctatcaa atgacagctt taaatttact ttttaaaatt 3000

tgttattgta tatatttatg gggtataaag tgatgttatg atatatatat acacaatgta 3060

cactgattaa atcaagccaa ttaacatttt atcatctcaa atacttaaca ttttttgtag 3120

tgagaacatt tgaaatttac ttttagcaat ttcaaaacat acattattat tattaactat 3180

agtcaccatg atgtaccata gatctttaaa aacttattct tcctgcctaa ctgaaacttt 3240

gtactctttg actaacatct tttcattccc ccacttccca gcctctggta atcaccatta 3300

cacactctgc ttctatgagt tcaattgctt tagactccac gtaataaatg agatcatgca 3360

gcatttggct ttctgtgcct ggcttatcct tgcttagcat ggtgtcttac aggttcatcc 3420

atgttgcaac aaataacaga atctcattct ttgttaaggc tgaatactat tccattgggt 3480

atatatacca cattttcctt atccattaat ccactgatgg acccttaggt tgttgattcc 3540

atatattggc tattgtaaat agtgcagcaa tgaacatgag agtgcaacta tctcttcaat 3600

gtactgattt cgaatccttc ggatctatct cagaagtgag attgcaggat catataattc 3660

tacttttagt cttttgagga gctccataca gctttccata tggccatact aattacattc 3720

tcatcaacag tgtacaatgg tttccttttc tccacatcct caccaacatt tataattttt 3780

tgtctttttg ataatagcca tctgacaggt gtaaagtgat agctcattgc agttttaatt 3840

tgcatttttt gatgattagt aatgttgaga atttttttcat atatctcttg gccagttgca 3900

tgtcttcttt ggaaaaatgt ctattcagtt cctttgccca ttttttaatt gggatttttg 3960

gtttcttgct attgagttgt ttgaattcaa tcaacctctg gattacaaaa tttgtgaaag 4020

attgactggt attcttaact atgttgctcc ttttacgcta tgtggatacg ctgctttaat 4080

gcctttgtat catgctattg cttcccgtat ggctttcatt ttctcctcct tgtataaatc 4140

ctggttgctg tctctttatg aggagttgtg gcccgttgtc aggcaacgtg gcgtggtgtg 4200

cactgtgttt gctgacgcaa cccccactgg ttggggcatt gccaccacct gtcagctcct 4260

ttccgggact ttcgctttcc ccctccctat tgccacggcg gaactcatcg ccgcctgcct 4320

tgcccgctgc tggacagggg ctcggctgtt gggcactgac aattccgtgg tgttgtcggg 4380

gaaatcatcg tcctttcctt ggctgctcgc ctgtgttgcc acctggattc tgcgcgggac 4440

gtccttctgc tacgtccctt cggccctcaa tccagcggac cttccttccc gcggcctgct 4500

gccggctctg cggcctcttc cgcgtcttcg ccttcgccct cagacgagtc ggatctccct 4560

ttgggccgcc tccccgcgct cgctttcttg ctgtccaatt tctattaaag gttcctttgt 4620

tccctaagtc caactactaa actgggggat attatgaagg gccttgagca tctggattct 4680

gcctaataaa aaacatttat tttcattgca agctcgcttt cttgctgtcc aatttctatt 4740

aaaggttcct ttgttcccta agtccaacta ctaaactggg ggatattatg aagggccttg 4800

agcatctgga ttctgcctaa taaaaaacat ttattttcat tgcaaaaaaa aaaaaaaaaa 4860

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4920

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaactcgg aaggacatgg 4980

tgtggaaagt ccccaggctc cccagcaggc agaagtatgc aaagcatgca tctcaattag 5040

tcagcaacca ggtgtggaaa gtccccaggc tccccagcag gcagaagtat gcaaagcatg 5100

catctcaatt agtcagcaac caaattaaag taacccataa cttcgtatag catacattat 5160

acgaagttat gaagttccta ttctctagaa agtataggaa cttctagtca cctatttcag 5220

catactacgc gcgtagtatg ctgaaatagg tttatcagca cacaatagtc cattatacgc 5280

gcgtataatg gcaattgtgt gctgattggg ttactttaat ttggatccgt cgaccgatgc 5340

ccttgagagc cttcaaccca gtcagctcct tccggtgggc gcggggcatg actatcgtcg 5400

ccgcacttat gactgtcttc tttatcatgc aactcgtagg acaggtgccg gcagcgctct 5460

tccgcttcct cgctcactga ctcgctgcgc tcggtcgttc ggctgcggcg agcggtatca 5520

gctcactcaa aggcggtaat acggttatcc acagaatcag gggataacgc aggaaagaac 5580

atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa aggccgcgtt gctggcgttt 5640

ttccataggc tccgcccccc tgacgagcat cacaaaaatc gacgctcaag tcagaggtgg 5700

cgaaacccga caggactata aagataccag gcgtttcccc ctggaagctc cctcgtgcgc 5760

tctcctgttc cgaccctgcc gcttaccgga tacctgtccg cctttctccc ttcgggaagc 5820

gtggcgcttt ctcatagctc acgctgtagg tatctcagtt cggtgtaggt cgttcgctcc 5880

aagctgggct gtgtgcacga acccccccgtt cagcccgacc gctgcgcctt atccggtaac 5940

tatcgtcttg agtccaaccc ggtaagacac gacttatcgc cactggcagc agccactggt 6000

aacaggatta gcagagcgag gtatgtaggc ggtgctacag agttcttgaa gtggtggcct 6060

aactacggct acactagaag aacagtattt ggtatctgcg ctctgctgaa gccagttacc 6120

ttcggaaaaa gagttggtag ctcttgatcc ggcaaacaaa ccaccgctgg tagcggtggt 6180

ttttttgttt gcaagcagca gattacgcgc agaaaaaaag gatctcaaga agatcctttg 6240

atcttttcta cggggtctga cgctcagtgg aacgaaaact cacgttaagg gattttggtc 6300

atgagattat caaaaaggat cttcacctag atccttttaa attaaaaatg aagttttaaa 6360

tcaatctaaa gtatatatga gtaaacttgg tctgacagtt accaatgctt aatcagtgag 6420

gcacctatct cagcgatctg tctatttcgt tcatccatag ttgcctgact ccccgtcgtg 6480

tagataacta cgatacggga gggcttacca tctggcccca gtgctgcaat gataccgcga 6540

gacccacgct caccggctcc agatttatca gcaataaacc agccagccgg aagggccgag 6600

cgcagaagtg gtcctgcaac tttatccgcc tccatccagt ctattaattg ttgccgggaa 6660

gctagagtaa gtagttcgcc agttaatagt ttgcgcaacg ttgttgccat tgctacaggc 6720

atcgtggtgt cacgctcgtc gtttggtatg gcttcattca gctccggttc ccaacgatca 6780

aggcgagtta catgatcccc catgttgtgc aaaaaagcgg ttagctcctt cggtcctccg 6840

atcgttgtca gaagtaagtt ggccgcagtg ttatcactca tggttatggc agcactgcat 6900

aattctctta ctgtcatgcc atccgtaaga tgcttttctg tgactggtga gtactcaacc 6960

aagtcattct gagaatagtg tatgcggcga ccgagttgct cttgcccggc gtcaatacgg 7020

gataataccg cgccacatag cagaacttta aaagtgctca tcattggaaa acgttcttcg 7080

gggcgaaaac tctcaaggat cttaccgctg ttgagatcca gttcgatgta acccactcgt 7140

gcacccaact gatcttcagc atcttttact ttcaccagcg tttctgggtg agcaaaaaca 7200

ggaaggcaaa atgccgcaaa aaagggaata agggcgacac ggaaatgttg aatactcata 7260

ctcttccttt ttcaatatta ttgaagcatt tatcagggtt attgtctcat gagcggatac 7320

atatttgaat gtatttagaa aaataaacaa ataggggttc cgcgcacatt tccccgaaaa 7380

gtgccacctg acgcgccctg tagcggcgca ttaagcgcgg cgggtgtggt ggttacgcgc 7440

agcgtgaccg ctacacttgc cagcgcccta gcgcccgctc ctttcgcttt cttcccttcc 7500

tttctcgcca cgttcgccgg ctttccccgt caagctctaa atcgggggct ccctttaggg 7560

ttccgattta gtgctttacg gcacctcgac cccaaaaaac ttgattaggg tgatggttca 7620

cgtagtgggc catcgccctg atagacggtt tttcgccctt tgacgttgga gtccacgttc 7680

tttaatagtg gactcttgtt ccaaactgga acaacactca accctatctc ggtctattct 7740

tttgatttat aagggatttt gccgatttcg gcctattggt taaaaaatga gctgatttaa 7800

caaaaattta acgcgaattt taacaaaata ttaacgctta caatttgcca ttcgccattc 7860

aggctgcgca actgttggga agggcgatcg gtgcgggcct cttcgctatt acgccagccc 7920

aagctaccat gataagtaag taatattaag gtacgtggag gttttacttg ctttaaaaaa 7980

cctcccacac ctccccctga acctgaaaca taaaatgaat gcaattgttg ttgttaactt 8040

gtttattgca gcttataatg gttacaaata aagcaatagc atcacaaatt tcacaaataa 8100

agcatttttt tcactgcatt ctagttgtgg tttgtccaaa ctcatcaatg tatcttatgg 8160

tactgtaact gagctaacat aa 8182

<210> 32

<211> 8943
<212> DNA
<213> Artificial Sequence

<220>
<223> SS*-UCOE-E1-CMV-UTR1-SecNLuc-2A-eGFP-MAR-WPRE-3'UTR[2huBGpA-A120]
-SS*

<400> 32
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgcac acgaccacaa ttccactgaa agcattttaa 420

tacggaactt gtcactccca gggagcctcc gctcagccgg cagttggttc atttcaatcc 480

ccacgacaac ccttcaaagt gcagggcaga cagcaggtgg ctctgcccag gcgcctggat 540

cacagcccgg cctgcagccc tcacctgggc gcggggagac cctgaggacg ctcctccagg 600

cggcgctggc cggggcctgc ggacacggac gggcgggctg agctccggga cccctccccg 660

cgccccgcac cccgcacccc gcaccccgca ccccgcaccc ggcgctcacc cgtcccagcc 720

ccgccgcccg cagccccagc tgcaacgcag ccaccgccgc catcgcaccc ggccccgcgg 780

gcgcttccgg gacgcaggag gcatctgcat ccggggcgcc gctgagtccc gcccagagcc 840

ccgcccccgg ctccaggttc tgcgagcggc ttccgccggg ctgctccgcg ggcgcgtcgg 900

ccatgagcga gttgccgggc gacgtgcggg cgtttctgcg ggagcacccg agcctgcggc 960

tccagacgga cgcccgcaag gttcgcagcg cgggagggga acggagtggc ggagaagggc 1020

gcagttggga tgaggggctg aggggagggc aggggagagg agagggcagg ggagagggga 1080

gaggggagag caggagagag gggaaggcag gggagagggc gcggcgggat caggggagga 1140

gagggaaggg actttccggg gcggggcacg tggtgcacgg gactttccgt gcacgtgcac 1200

gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt ccgtgcacga 1260

cattgattat tgactagtta ttaatagtaa tcaattacgg ggtcattagt tcatagccca 1320

tatatggagt tccgcgttac ataacttacg gtaaatggcc cgcctggctg accgcccaac 1380

gacccccgcc cattgacgtc aataatgacg tatgttccca tagtaacgcc aatagggact 1440

ttccattgac gtcaatgggt ggagtattta cggtaaactg cccacttggc agtacatcaa 1500

gtgtatcata tgccaagtac gccccctatt gacgtcaatg acggtaaatg gcccgcctgg 1560

cattatgccc agtacatgac cttatgggac tttcctactt ggcagtacat ctacgtatta 1620

gtcatcgcta ttaccatggt gatgcggttt tggcagtaca tcaatgggcg tggatagcgg 1680

tttgactcac ggggatttcc aagtctccac cccattgacg tcaatgggag tttgttttgg 1740

caccaaaatc aacgggactt tccaaaatgt cgtaacaact ccgccccatt gacgcaaatg 1800

ggcggtaggc gtgtacggtg ggaggtctat ataagcagag ctctgccttc tccctcctgt 1860

gagtttggta agtcgacggg ccgggcctgg gccgggtccg ggccgggtcg ttggatcccc 1920

actacagccc gatactcaag cttgacgaat tcgagtatcc aaggtagtgg actagtgtga 1980

cgctgctgac ccctttcttt cccttctgca ggttggtgta cagtagcttc caaattgatt 2040

aattcgagcg aacgcgtcgc caccatgaac tccttctcca caagcgcctt cggtccagtt 2100

gccttctccc tgggcctgct cctggtgttg cctgctgcct tccctgcccc agtcttcaca 2160

ctcgaagatt tcgttgggga ctggcgacag acagccggct acaacctgga ccaagtcctt 2220

gaacagggag gtgtgtccag tttgtttcag aatctcgggg tgtccgtaac tccgatccaa 2280

aggattgtcc tgagcggtga aaatgggctg aagatcgaca tccatgtcat catcccgtat 2340

gaaggtctga gcggcgacca aatgggccag atcgaaaaaa tttttaaggt ggtgtaccct 2400

gtggatgatc atcactttaa ggtgatcctg cactatggca cactggtaat cgacggggtt 2460

acgccgaaca tgatcgacta tttcggacgg ccgtatgaag gcatcgccgt gttcgacggc 2520

aaaaagatca ctgtaacagg gaccctgtgg aacggcaaca aaattatcga cgagcgcctg 2580

atcaaccccg acggctccct gctgttccga gtaaccatca acggagtgac cggctggcgg 2640

ctgtgcgaac gcattctggc ggctagcgct actaacttca gcctgctgaa gcaggctgga 2700

gacgtggagg agaaccctgg acctggaagc ggagagggca gaggaagtct gctaacatgc 2760

ggtgacgtcg aggagaatcc tggacctgga tccggaatgg tgagcaaggg cgaggagctg 2820

ttcaccgggg tggtgcccat cctggtcgag ctggacggcg acgtaaacgg ccacaagttc 2880

agcgtgtccg gcgagggcga gggcgatgcc acctacggca agctgaccct gaagttcatc 2940

tgcaccaccg gcaagctgcc cgtgccctgg cccaccctcg tgaccaccct gacctacggc 3000

gtgcagtgct tcagccgcta ccccgaccac atgaagcagc acgacttctt caagtccgcc 3060

atgcccgaag gctacgtcca ggagcgcacc atcttcttca aggacgacgg caactacaag 3120

acccgcgccg aggtgaagtt cgagggcgac accctggtga accgcatcga gctgaagggc 3180

atcgacttca aggaggacgg caacatcctg gggcacaagc tggagtacaa ctacaacagc 3240

cacaacgtct atatcatggc cgacaagcag aagaacggca tcaaggtgaa cttcaagatc 3300

cgccacaaca tcgaggacgg cagcgtgcag ctcgccgacc actaccagca gaacaccccc 3360

atcggcgacg gccccgtgct gctgcccgac aaccactacc tgagcaccca gtccgccctg 3420

agcaaagacc ccaacgagaa gcgcgatcac atggtcctgc tggagttcgt gaccgccgcc 3480

gggatcactc tcggcatgga cgagctgtac aagtaaggat cccattctcc ttgatgtact 3540

aatttttctt taaaagtgat aataatagct cccatttaga atttttaaat aacacaacaa 3600

atgtaaagta actaatgtgt cctctggatc atggtaagta atgaataaat ttaactccct 3660

ttaccttctc cctttgctat tttttccatg ctaggattta tacattttta aaaaactaaa 3720

tctgctatca aatgacagct ttaaatttac tttttaaaat ttgttattgt atatatttat 3780

ggggtataaa gtgatgttat gatatatata tacacaatgt acactgatta aatcaagcca 3840

attaacattt tatcatctca aatacttaac atttttttgta gtgagaacat ttgaaattta 3900

cttttagcaa tttcaaaaca tacattatta ttattaacta tagtcaccat gatgtaccat 3960

agatctttaa aaacttattc ttcctgccta actgaaactt tgtactcttt gactaacatc 4020

ttttcattcc cccacttccc agcctctggt aatcaccatt acacactctg cttctatgag 4080

ttcaattgct ttagactcca cgtaataaat gagatcatgc agcatttggc tttctgtgcc 4140

tggcttatcc ttgcttagca tggtgtctta caggttcatc catgttgcaa caaataacag 4200

aatctcattc tttgttaagg ctgaatacta ttccattggg tatatatacc acattttcct 4260

tatccattaa tccactgatg gacccttagg ttgttgattc catatattgg ctattgtaaa 4320

tagtgcagca atgaacatga gagtgcaact atctcttcaa tgtactgatt tcgaatcctt 4380

cggatctatc tcagaagtga gattgcagga tcatataatt ctacttttag tcttttgagg 4440

agctccatac agctttccat atggccatac taattacatt ctcatcaaca gtgtacaatg 4500

gtttcctttt ctccacatcc tcaccaacat ttataatttt ttgtcttttt gataatagcc 4560

atctgacagg tgtaaagtga tagctcattg cagttttaat ttgcattttt tgatgattag 4620

taatgttgag aatttttca tatatctctt ggccagttgc atgtcttctt tggaaaaatg 4680

tctattcagt tcctttgccc atttttaat tgggattttt ggtttcttgc tattgagttg 4740

tttgaattca atcaacctct ggattacaaa atttgtgaaa gattgactgg tattcttaac 4800

tatgttgctc cttttacgct atgtggatac gctgctttaa tgcctttgta tcatgctatt 4860

gcttcccgta tggctttcat tttctcctcc ttgtataaat cctggttgct gtctctttat 4920

gaggagttgt ggcccgttgt caggcaacgt ggcgtggtgt gcactgtgtt tgctgacgca 4980

acccccactg gttggggcat tgccaccacc tgtcagctcc tttccgggac tttcgctttc 5040

cccctcccta ttgccacggc ggaactcatc gccgcctgcc ttgcccgctg ctggacaggg 5100

gctcggctgt tgggcactga caattccgtg gtgttgtcgg ggaaatcatc gtcctttcct 5160

tggctgctcg cctgtgttgc cacctggatt ctgcgcggga cgtccttctg ctacgtccct 5220

tcggccctca atccagcgga ccttccttcc cgcggcctgc tgccggctct gcggcctctt 5280

ccgcgtcttc gccttcgccc tcagacgagt cggatctccc tttgggccgc ctccccgcgc 5340

tcgctttctt gctgtccaat ttctattaaa ggttcctttg ttccctaagt ccaactacta 5400

aactggggga tattatgaag ggccttgagc atctggattc tgcctaataa aaaacattta 5460

ttttcattgc aagctcgctt tcttgctgtc caatttctat taaaggttcc tttgttccct 5520

aagtccaact actaaactgg gggatattat gaagggcctt gagcatctgg attctgccta 5580

ataaaaaaca tttattttca ttgcaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 5640

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 5700

aaaaaaaaaa aaaaaaaaaa aaaaaactcg gaaggacatg gtgtggaaag tccccaggct 5760

ccccagcagg cagaagtatg caaagcatgc atctcaatta gtcagcaacc aggtgtggaa 5820

agtccccagg ctccccagca ggcagaagta tgcaaagcat gcatctcaat tagtcagcaa 5880

ccaaattaaa gtaacccata acttcgtata gcatacatta tacgaagtta tgaagttcct 5940

attctctaga aagtatagga acttctagtc acctatttca gcatactacg cgcgtagtat 6000

gctgaaatag gtttatcagc acacaatagt ccattatacg cgcgtataat ggcaattgtg 6060

tgctgattgg gttactttaa tttggatccg tcgaccgatg cccttgagag ccttcaaccc 6120

agtcagctcc ttccggtggg cgcggggcat gactatcgtc gccgcactta tgactgtctt 6180

ctttatcatg caactcgtag gacaggtgcc ggcagcgctc ttccgcttcc tcgctcactg 6240

actcgctgcg ctcggtcgtt cggctgcggc gagcggtatc agctcactca aaggcggtaa 6300

tacggttatc cacagaatca ggggataacg caggaaagaa catgtgagca aaaggccagc 6360

aaaaggccag gaaccgtaaa aaggccgcgt tgctggcgtt tttccatagg ctccgccccc 6420

ctgacgagca tcacaaaaat cgacgctcaa gtcagaggtg gcgaaacccg acaggactat 6480

aaagatacca ggcgtttccc cctggaagct ccctcgtgcg ctctcctgtt ccgaccctgc 6540

cgcttaccgg atacctgtcc gcctttctcc cttcgggaag cgtggcgctt tctcatagct 6600

cacgctgtag gtatctcagt tcggtgtagg tcgttcgctc caagctgggc tgtgtgcacg 6660

aacccccccgt tcagcccgac cgctgcgcct tatccggtaa ctatcgtctt gagtccaacc 6720

cggtaagaca cgacttatcg ccactggcag cagccactgg taacaggatt agcagagcga 6780

ggtatgtagg cggtgctaca gagttcttga agtggtggcc taactacggc tacactagaa 6840

gaacagtatt tggtatctgc gctctgctga agccagttac cttcggaaaa agagttggta 6900

gctcttgatc cggcaaacaa accaccgctg gtagcggtgg ttttttgtt tgcaagcagc 6960

agattacgcg cagaaaaaaa ggatctcaag aagatccttt gatcttttct acggggtctg 7020

acgctcagtg gaacgaaaac tcacgttaag ggattttggt catgagatta tcaaaaagga 7080

tcttcaccta gatcctttta aattaaaaat gaagttttaa atcaatctaa agtatatatg 7140

agtaaacttg gtctgacagt taccaatgct taatcagtga ggcacctatc tcagcgatct 7200

gtctatttcg ttcatccata gttgcctgac tccccgtcgt gtagataact acgatacggg 7260

agggcttacc atctggcccc agtgctgcaa tgataccgcg agacccacgc tcaccggctc 7320

cagatttatc agcaataaac cagccagccg gaagggccga gcgcagaagt ggtcctgcaa 7380

ctttatccgc ctccatccag tctattaatt gttgccggga agctagagta agtagttcgc 7440

cagttaatag tttgcgcaac gttgttgcca ttgctacagg catcgtggtg tcacgctcgt 7500

cgtttggtat ggcttcattc agctccggtt cccaacgatc aaggcgagtt acatgatccc 7560

ccatgttgtg caaaaaagcg gttagctcct tcggtcctcc gatcgttgtc agaagtaagt 7620

tggccgcagt gttatcactc atggttatgg cagcactgca taattctctt actgtcatgc 7680

catccgtaag atgcttttct gtgactggtg agtactcaac caagtcattc tgagaatagt 7740

gtatgcggcg accgagttgc tcttgcccgg cgtcaatacg ggataatacc gcgccacata 7800

gcagaacttt aaaagtgctc atcattggaa aacgttcttc ggggcgaaaa ctctcaagga 7860

tcttaccgct gttgagatcc agttcgatgt aacccactcg tgcacccaac tgatcttcag 7920

catcttttac tttcaccagc gtttctgggt gagcaaaaac aggaaggcaa aatgccgcaa 7980

aaaagggaat aagggcgaca cggaaatgtt gaatactcat actcttcctt tttcaatatt 8040

attgaagcat ttatcagggt tattgtctca tgagcggata catatttgaa tgtatttaga 8100

aaaataaaca aatagggggtt ccgcgcacat ttccccgaaa agtgccacct gacgcgccct 8160

gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc gctacacttg 8220

ccagcgccct agcgcccgct cctttcgctt tcttcccttc ctttctcgcc acgttcgccg 8280

gctttccccg tcaagctcta aatcgggggc tccctttagg gttccgattt agtgctttac 8340

ggcacctcga ccccaaaaaa cttgattagg gtgatggttc acgtagtggg ccatcgccct 8400

gatagacggt ttttcgccct ttgacgttgg agtccacgtt ctttaatagt ggactcttgt 8460

tccaaactgg aacaacactc aaccctatct cggtctattc ttttgattta taagggattt 8520

tgccgatttc ggcctattgg ttaaaaaatg agctgattta acaaaaattt aacgcgaatt 8580

ttaacaaaat attaacgctt acaatttgcc attcgccatt caggctgcgc aactgttggg 8640

aagggcgatc ggtgcgggcc tcttcgctat tacgccagcc caagctacca tgataagtaa 8700

gtaatattaa ggtacgtgga ggttttactt gctttaaaaa acctcccaca cctccccctg 8760

aacctgaaac ataaaatgaa tgcaattgtt gttgttaact tgtttattgc agcttataat 8820

ggttacaaat aaagcaatag catcacaaat ttcacaaata aagcattttt ttcactgcat 8880

tctagttgtg gtttgtccaa actcatcaat gtatcttatg gtactgtaac tgagctaaca 8940

taa 8943

<210> 33
<211> 340
<212> DNA
<213> Artificial Sequence

<220>
<223> Super Sequence, SS*

<400> 33
taaagtaacc caatcagcac acaattgcca ttatacgcgc gtataatgga ctattgtgtg 60

ctgataaacc tatttcagca tactacgcgc gtagtatgct gaaataggtg actagaagtt 120

cctatacttt ctagagaata ggaacttcat aacttcgtat aatgtatgct atacgaagtt 180

atgggttact ttaatttggt tgctgactaa ttgagatgca tgctttgcat acttctgcct 240

gctggggagc ctggggactt tccacacctg gttgctgact aattgagatg catgctttgc 300

atacttctgc ctgctgggga gcctggggac tttccacacc 340

<210> 34
<211> 6326
<212> DNA
<213> Artificial Sequence

<220>
<223> pGL2-CAG-SecNLuc-2A-eGFP-WPRE-bGlobin polyA

<400> 34
cccgggaggt accgagctct tacgcgtgct agcctgggtc gacattgatt attgactagt 60

tattaatagt aatcaattac ggggtcatta gttcatagcc catatatgga gttccgcgtt 120

acataactta cggtaaatgg cccgcctggc tgaccgccca acgacccccg cccattgacg 180

tcaataatga cgtatgttcc catagtaacg ccaataggga ctttccattg acgtcaatgg 240

gtggagtatt tacggtaaac tgcccacttg gcagtacatc aagtgtatca tatgccaagt 300

acgcccccta ttgacgtcaa tgacggtaaa tggcccgcct ggcattatgc ccagtacatg 360

accttatggg actttcctac ttggcagtac atctacgtat tagtcatcgc tattaccatg 420

gtcgaggtga gccccacgtt ctgcttcact ctccccatct ccccccccctc cccacccccа 480

attttgtatt tatttatttt ttaattattt tgtgcagcga tgggggcggg gggggggggg 540

gcgcgcgcca ggcggggcgg ggcggggcga ggggcggggc ggggcgaggc ggaaaggtgc 600

ggcggcagcc aatcagagcg gcgcgctccg aaagtttcct tttatggcga ggcggcggcg 660

gcggcggccc tataaaaagc gaagcgcgcg gcgggcggga gtcgctgcgt tgccttcgcc 720

ccgtgccccg ctccgcgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 780

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 840

atgacggctc gtttcttttc tgtggctgcg tgaaagcctt aaagggctcc gggagggccc 900

tttgtgcggg ggggagcggc tcgggggtg cgtgcgtgtg tgtgtgcgtg gggagcgccg 960

cgtgcggctc cgcgctgccc ggcggctgtg agcgctgcgg gcgcggcgcg gggctttgtg 1020

cgctccgcag tgtgcgcgag gggagcgcgg ccgggggcgg tgccccgcgg tgcgggggg 1080

gctgcgaggg gaacaaaggc tgcgtgcggg gtgtgtgcgt gggggggtga gcagggggtg 1140

tgggcgcggc ggtcgggctg taacccccc ctgcaccccc ctccccgagt tgctgagcac 1200

ggcccggctt cgggtgcggg gctccgtacg gggcgtggcg cggggctcgc cgtgccgggc 1260

ggggggtggc ggcaggtggg ggtgccgggc ggggcggggc cgcctcgggc cggggagggc 1320

tcgggggagg ggcgcggcgg cccccggagc gccggcggct gtcgaggcgc ggcgagccgc 1380

agccattgcc ttttatggta atcgtgcgag agggcgcagg gacttccttt gtcccaaatc 1440

tgtgcggagc cgaaatctgg gaggcgccgc cgcacccccc ctagcgggcg cggggcgaag 1500

cggtgcggcg ccggcaggaa ggaaatgggc ggggagggcc ttcgtgcgtc gccgcgccgc 1560

cgtccccttc tccctctcca gcctcggggc tgtccgcggg gggacggctg ccttcggggg 1620

ggacggggca gggcggggtt cggcttctgg cgtgtgaccg gcggctctag agcctctgct 1680

aaccatgttc atgccttctt ctttttccta cagctcctgg gcaacgtgct ggttattgtg 1740

ctgtctcatc attttggcaa agaattgatt aattcgagcg aacgcgtcgc caccatgaac 1800

tccttctcca caagcgcctt cggtccagtt gccttctccc tgggcctgct cctggtgttg 1860

cctgctgcct tccctgcccc agtcttcaca ctcgaagatt tcgttgggga ctggcgacag 1920

acagccggct acaacctgga ccaagtcctt gaacagggag gtgtgtccag tttgtttcag 1980

aatctcgggg tgtccgtaac tccgatccaa aggattgtcc tgagcggtga aaatgggctg 2040

aagatcgaca tccatgtcat catcccgtat gaaggtctga gcggcgacca aatgggccag 2100

atcgaaaaaa tttttaaggt ggtgtaccct gtggatgatc atcactttaa ggtgatcctg 2160

cactatggca cactggtaat cgacggggtt acgccgaaca tgatcgacta tttcggacgg 2220

ccgtatgaag gcatcgccgt gttcgacggc aaaaagatca ctgtaacagg gaccctgtgg 2280

aacggcaaca aaattatcga cgagcgcctg atcaaccccg acggctccct gctgttccga 2340

gtaaccatca acggagtgac cggctggcgg ctgtgcgaac gcattctggc ggctagcgct 2400

actaacttca gcctgctgaa gcaggctgga gacgtggagg agaaccctgg acctggaagc 2460

ggagagggca gaggaagtct gctaacatgc ggtgacgtcg aggagaatcc tggacctgga 2520

tccggaatgg tgagcaaggg cgaggagctg ttcaccgggg tggtgcccat cctggtcgag 2580

ctggacggcg acgtaaacgg ccacaagttc agcgtgtccg gcgagggcga gggcgatgcc 2640

acctacggca agctgaccct gaagttcatc tgcaccaccg gcaagctgcc cgtgccctgg 2700

cccaccctcg tgaccaccct gacctacggc gtgcagtgct tcagccgcta ccccgaccac 2760

atgaagcagc acgacttctt caagtccgcc atgcccgaag gctacgtcca ggagcgcacc 2820

atcttcttca aggacgacgg caactacaag acccgcgccg aggtgaagtt cgagggcgac 2880

accctggtga accgcatcga gctgaagggc atcgacttca aggaggacgg caacatcctg 2940

gggcacaagc tggagtacaa ctacaacagc cacaacgtct atatcatggc cgacaagcag 3000

aagaacggca tcaaggtgaa cttcaagatc cgccacaaca tcgaggacgg cagcgtgcag 3060

ctcgccgacc actaccagca gaacaccccc atcggcgacg gccccgtgct gctgcccgac 3120

aaccactacc tgagcaccca gtccgccctg agcaaagacc ccaacgagaa gcgcgatcac 3180

atggtcctgc tggagttcgt gaccgccgcc gggatcactc tcggcatgga cgagctgtac 3240

aagtaagcgg ccgcactcct caggtgcagg ctgcctatca gaaggtggtg gctggtgtgg 3300

ccaatgccct ggctcacaaa taccactgag atctttttcc ctctgccaaa aattatgggg 3360

acatcatgaa gccccttgag catctgactt ctggctaata aaggaaattt attttcattg 3420

caatagtgtg ttggaatttt ttgtgtctct cactcggaag gacattggat ccgtcgaccg 3480

atgcccttga gagccttcaa cccagtcagc tccttccggt gggcgcgggg catgactatc 3540

gtcgccgcac ttatgactgt cttctttatc atgcaactcg taggacaggt gccggcagcg 3600

ctcttccgct tcctcgctca ctgactcgct gcgctcggtc gttcggctgc ggcgagcggt 3660

atcagctcac tcaaaggcgg taatacggtt atccacagaa tcaggggata acgcaggaaa 3720

gaacatgtga gcaaaaggcc agcaaaaggc caggaaccgt aaaaaggccg cgttgctggc 3780

gtttttccat aggctccgcc cccctgacga gcatcacaaa aatcgacgct caagtcagag 3840

gtggcgaaac ccgacaggac tataaagata ccaggcgttt ccccctggaa gctccctcgt 3900

gcgctctcct gttccgaccc tgccgcttac cggatacctg tccgcctttc tcccttcggg 3960

aagcgtggcg ctttctcata gctcacgctg taggtatctc agttcggtgt aggtcgttcg 4020

ctccaagctg ggctgtgtgc acgaaccccc cgttcagccc gaccgctgcg ccttatccgg 4080

taactatcgt cttgagtcca acccggtaag acacgactta tcgccactgg cagcagccac 4140

tggtaacagg attagcagag cgaggtatgt aggcggtgct acagagttct tgaagtggtg 4200

gcctaactac ggctacacta gaagaacagt atttggtatc tgcgctctgc tgaagccagt 4260

taccttcgga aaaagagttg gtagctcttg atccggcaaa caaaccaccg ctggtagcgg 4320

tggtttttt gtttgcaagc agcagattac gcgcagaaaa aaaggatctc aagaagatcc 4380

tttgatcttt tctacggggt ctgacgctca gtggaacgaa aactcacgtt aagggatttt 4440

ggtcatgaga ttatcaaaaa ggatcttcac ctagatcctt ttaaattaaa aatgaagttt 4500

taaatcaatc taaagtatat atgagtaaac ttggtctgac agttaccaat gcttaatcag 4560

tgaggcacct atctcagcga tctgtctatt tcgttcatcc atagttgcct gactccccgt 4620

cgtgtagata actacgatac gggagggctt accatctggc cccagtgctg caatgatacc 4680

gcgagaccca cgctcaccgg ctccagattt atcagcaata aaccagccag ccggaagggc 4740

cgagcgcaga agtggtcctg caactttatc cgcctccatc cagtctatta attgttgccg 4800

ggaagctaga gtaagtagtt cgccagttaa tagtttgcgc aacgttgttg ccattgctac 4860

aggcatcgtg gtgtcacgct cgtcgtttgg tatggcttca ttcagctccg gttcccaacg 4920

atcaaggcga gttacatgat cccccatgtt gtgcaaaaaa gcggttagct ccttcggtcc 4980

tccgatcgtt gtcagaagta agttggccgc agtgttatca ctcatggtta tggcagcact 5040

gcataattct cttactgtca tgccatccgt aagatgcttt tctgtgactg gtgagtactc 5100

aaccaagtca ttctgagaat agtgtatgcg gcgaccgagt tgctcttgcc cggcgtcaat 5160

acgggataat accgcgccac atagcagaac tttaaaagtg ctcatcattg gaaaacgttc 5220

ttcggggcga aaactctcaa ggatcttacc gctgttgaga tccagttcga tgtaacccac 5280

tcgtgcaccc aactgatctt cagcatcttt tactttcacc agcgtttctg ggtgagcaaa 5340

aacaggaagg caaaatgccg caaaaaaggg aataagggcg acacggaaat gttgaatact 5400

catactcttc ctttttcaat attattgaag catttatcag ggttattgtc tcatgagcgg 5460

atacatattt gaatgtattt agaaaaataa acaaataggg gttccgcgca catttccccg 5520

aaaagtgcca cctgacgcgc cctgtagcgg cgcattaagc gcggcgggtg tggtggttac 5580

gcgcagcgtg accgctacac ttgccagcgc cctagcgccc gctcctttcg ctttcttccc 5640

ttcctttctc gccacgttcg ccggctttcc ccgtcaagct ctaaatcggg ggctcccttt 5700

agggttccga tttagtgctt tacggcacct cgaccccaaa aaacttgatt agggtgatgg 5760

ttcacgtagt gggccatcgc cctgatagac ggtttttcgc cctttgacgt tggagtccac 5820

gttctttaat agtggactct tgttccaaac tggaacaaca ctcaacccta tctcggtcta 5880

ttcttttgat ttataaggga ttttgccgat ttcggcctat tggttaaaaa atgagctgat 5940

ttaacaaaaa tttaacgcga attttaacaa aatattaacg cttacaattt gccattcgcc 6000

attcaggctg cgcaactgtt gggaagggcg atcggtgcgg gcctcttcgc tattacgcca 6060

gcccaagcta ccatgataag taagtaatat taaggtacgt ggaggtttta cttgctttaa 6120

aaaacctccc acacctcccc ctgaacctga aacataaaat gaatgcaatt gttgttgtta 6180

acttgtttat tgcagcttat aatggttaca aataaagcaa tagcatcaca aatttcacaa 6240

ataaagcatt tttttcactg cattctagtt gtggtttgtc caaactcatc aatgtatctt 6300

atggtactgt aactgagcta acataa 6326

<210> 35
<211> 1626
<212> DNA
<213> Artificial Sequence

<220>
<223> CAG [E1X3+CBA promoter+intron]

<400> 35
gggactttcc ggggcggggc acgtggtgca cgggactttc cgtgcacgtg cacgggactt 60

tccgggactt tccgggactt tccgtgcacc acgtggggac tttccgtgca cgggactttc 120

cggggcgggg cacgtggtgc acgggacttt ccgtgcacgt gcacgggact ttccgggact 180

ttccgggact ttccgtgcac cacgtgggga ctttccgtgc acgggacttt ccggggcggg 240

gcacgtggtg cacgggactt tccgtgcacg tgcacgggac tttccgggac tttccgggac 300

tttccgtgca ccacgtgggg actttccgtg cacgtcgagg tgagccccac gttctgcttc 360

actctcccca tctccccccc ctccccaccc ccaattttgt atttatttat tttttaatta 420

ttttgtgcag cgatgggggc gggggggggg ggggcgcgcg ccaggcgggg cggggcgggg 480

cgaggggcgg ggcggggcga ggcggaaagg tgcggcggca gccaatcaga gcggcgcgct 540

ccgaaagttt cctttttatgg cgaggcggcg gcggcggcgg ccctataaaa agcgaagcgc 600

gcggcgggcg ggagtcgctg cgttgccttc gccccgtgcc ccgctccgcg ccgcctcgcg 660

ccgcccgccc cggctctgac tgaccgcgtt actcccacag gtgagcgggc gggacggccc 720

ttctcctccg ggctgtaatt agcgcttggt ttaatgacgg ctcgtttctt ttctgtggct 780

gcgtgaaagc cttaaagggc tccgggaggg ccctttgtgc gggggggagc ggctcggggg 840

gtgcgtgcgt gtgtgtgtgc gtggggagcg ccgcgtgcgg ctccgcgctg cccggcggct 900

gtgagcgctg cgggcgcggc gcggggcttt gtgcgctccg cagtgtgcgc gaggggagcg 960

cggccggggg cggtgccccg cggtgcgggg ggggctgcga ggggaacaaa ggctgcgtgc 1020

ggggtgtgtg cgtgggggGg tgagcagggg gtgtgggcgc ggcggtcggg ctgtaacccc 1080

cccctgcacc cccctccccg agttgctgag cacggcccgg cttcgggtgc ggggctccgt 1140

acggggcgtg gcgcggggct cgccgtgccg ggcgggggGt ggcggcaggt gggggtgccg 1200

ggcggggcgg ggccgcctcg ggccggggag ggctcggggg aggggcgcgg cggcccccgg 1260

agcgccggcg gctgtcgagg cgcggcgagc cgcagccatt gccttttatg gtaatcgtgc 1320

gagagggcgc agggacttcc tttgtcccaa atctgtgcgg agccgaaatc tgggaggcgc 1380

cgccgcaccc cctctagcgg gcgcggggcg aagcggtgcg gcgccggcag gaaggaaatg 1440

ggcggggagg gccttcgtgc gtcgccgcgc cgccgtcccc ttctccctct ccagcctcgg 1500

ggctgtccgc gggggggacgg ctgccttcgg gggggacggg gcagggcggg gttcggcttc 1560

tggcgtgtga ccggcggctc tagagcctct gctaaccatg ttcatgcctt cttcttttc 1620

ctacag 1626

<210> 36
<211> 1559
<212> DNA
<213> Artificial Sequence

<220>
<223> CAG [E2+CBA promoter+intron]

<400> 36
tgggactttc cactagacat gacacagcaa tctgatatgc ttgcgtgaga agaggattca 60

tatcctggga ctttccacag attttaccgg aagttgttag atgcttgcgt gagaagatct 120

aacatgacac agcaatcctt agtgggactt tccaagtatg tggggcgggg agtatacatg 180

acacagcaat tgatcattac cggaagttta taggtgggac tttccagacc tatgcttgcg 240

tgagaagaaa ggtctgggac tttccagtcg aggtgagccc cacgttctgc ttcactctcc 300

ccatctcccc cccctcccca cccccaattt tgtatttatt tatttttaa ttattttgtg 360

cagcgatggg ggcgggggg ggggggcgc gcgccaggcg gggcggggcg gggcgagggg 420

cggggcgggg cgaggcggaa aggtgcggcg gcagccaatc agagcggcgc gctccgaaag 480

tttcctttta tggcgaggcg gcggcggcgg cggccctata aaaagcgaag cgcgcggcgg 540

gcgggagtcg ctgcgttgcc ttcgccccgt gccccgctcc gcgccgcctc gcgccgcccg 600

ccccggctct gactgaccgc gttactccca caggtgagcg ggcgggacgg cccttctcct 660

ccgggctgta attagcgctt ggtttaatga cggctcgttt cttttctgtg gctgcgtgaa 720

agccttaaag ggctccggga gggccctttg tgcgggggg agcggctcgg ggggtgcgtg 780

cgtgtgtgtg tgcgtgggga gcgccgcgtg cggctccgcg ctgcccggcg gctgtgagcg 840

ctgcgggcgc ggcgcggggc tttgtgcgct ccgcagtgtg cgcgagggga gcgcggccgg 900

gggcggtgcc ccgcggtgcg gggggggctg cgaggggaac aaaggctgcg tgcggggtgt 960

gtgcgtgggg gggtgagcag ggggtgtggg cgcggcggtc gggctgtaac ccccccctgc 1020

acccccctcc ccgagttgct gagcacggcc cggcttcggg tgcggggctc cgtacggggc 1080

gtggcgcggg gctcgccgtg ccgggcgggg ggtggcggca ggtgggggtg ccgggcgggg 1140

cggggccgcc tcgggccggg gagggctcgg gggaggggcg cggcggcccc cggagcgccg 1200

gcggctgtcg aggcgcggcg agccgcagcc attgcctttt atggtaatcg tgcgagaggg 1260

cgcagggact tcctttgtcc caaatctgtg cggagccgaa atctgggagg cgccgccgca 1320

ccccctctag cgggcgcggg gcgaagcggt gcggcgccgg caggaaggaa atgggcgggg 1380

agggccttcg tgcgtcgccg cgccgccgtc cccttctccc tctccagcct cggggctgtc 1440

cgcgggggga cggctgcctt cgggggggac ggggcagggc ggggttcggc ttctggcgtg 1500

tgaccggcgg ctctagagcc tctgctaacc atgttcatgc cttcttcttt ttcctacag 1559

<210> 37
<211> 826
<212> DNA
<213> Artificial Sequence

<220>
<223> CAG [E1X3+CBA promoter+UTR1]

<400> 37
gggactttcc ggggcggggc acgtggtgca cgggactttc cgtgcacgtg cacgggactt 60

tccgggactt tccgggactt tccgtgcacc acgtggggac tttccgtgca cgggactttc 120

cggggcgggg cacgtggtgc acgggacttt ccgtgcacgt gcacgggact ttccgggact 180

ttccgggact ttccgtgcac cacgtgggga ctttccgtgc acgggacttt ccggggcggg 240

gcacgtggtg cacgggactt tccgtgcacg tgcacgggac tttccgggac tttccgggac 300

tttccgtgca ccacgtgggg actttccgtg cacgtcgagg tgagccccac gttctgcttc 360

actctcccca tctccccccc ctccccaccc ccaattttgt atttatttat tttttaatta 420

ttttgtgcag cgatgggggc gggggggggg ggggcgcgcg ccaggcgggg cggggcgggg 480

cgaggggcgg ggcggggcga ggcggaaagg tgcggcggca gccaatcaga gcggcgcgct 540

ccgaaagttt ccttttatgg cgaggcggcg gcggcggcgg ccctataaaa agcgaagcgc 600

gcggcgggcg ctgccttctc cctcctgtga gtttggtaag tcgacgggcc gggcctgggc 660

cgggtccggg ccgggtcgtt ggatccccac tacagcccga tactcaagct tgacgaattc 720

gagtatccaa ggtagtggac tagtgtgacg ctgctgaccc ctttctttcc cttctgcagg 780

ttggtgtaca gtagcttcca aattgattaa ttcgagcgaa cgcgtc 826

<210> 38
<211> 759
<212> DNA
<213> Artificial Sequence

<220>
<223> CAG [E2 (U100)+CBA promoter+UTR1]

<400> 38
tgggactttc cactagacat gacacagcaa tctgatatgc ttgcgtgaga agaggattca 60

tatcctggga ctttccacag attttaccgg aagttgttag atgcttgcgt gagaagatct 120

aacatgacac agcaatcctt agtgggactt tccaagtatg tggggcgggg agtatacatg 180

acacagcaat tgatcattac cggaagttta taggtgggac tttccagacc tatgcttgcg 240

tgagaagaaa ggtctgggac tttccagtcg aggtgagccc cacgttctgc ttcactctcc 300

ccatctcccc cccctcccca cccccaattt tgtatttatt tatttttaa ttattttgtg 360

cagcgatggg ggcgggggggg ggggggggcgc gcgccaggcg gggcggggcg gggcgagggg 420

cggggcgggg cgaggcggaa aggtgcggcg gcagccaatc agagcggcgc gctccgaaag 480

tttcctttta tggcgaggcg gcggcggcgg cggccctata aaaagcgaag cgcgcggcgg 540

gcgctgcctt ctccctcctg tgagtttggt aagtcgacgg gccgggcctg ggccgggtcc 600

gggccgggtc gttggatccc cactacagcc cgatactcaa gcttgacgaa ttcgagtatc 660

caaggtagtg gactagtgtg acgctgctga ccccctttctt tcccttctgc aggttggtgt 720

acagtagctt ccaaattgat taattcgagc gaacgcgtc 759

<210> 39
<211> 808
<212> DNA
<213> Artificial Sequence

<220>
<223> CMV enhancer-EF1-UTR1

<400> 39
gacattgatt attgactagt tattaatagt aatcaattac ggggtcatta gttcatagcc 60

catatatgga gttccgcgtt acataactta cggtaaatgg cccgcctggc tgaccgccca 120

acgacccccg cccattgacg tcaataatga cgtatgttcc catagtaacg ccaataggga 180

ctttccattg acgtcaatgg gtggagtatt tacggtaaac tgcccacttg gcagtacatc 240

aagtgtatca tatgccaagt acgcccccta ttgacgtcaa tgacggtaaa tggcccgcct 300

ggcattatgc ccagtacatg accttatggg actttcctac ttggcagtac atctacgtat 360

tagtcatcgc tattaccatg gggcagagcg cacatcgccc acagtccccg agaagttggg 420

gggaggggtc ggcaattgaa ccggtgccta gagaaggtgg cgcggggtaa actgggaaag 480

tgatgtcgtg tactggctcc gccttttttcc cgagggtggg ggagaaccgt atataagtgc 540

agtagtcgcc gtgaacgttc tttttcgcaa cgggtttgcc gccagaacac agctgccttc 600

tccctcctgt gagtttggta agtcgacggg ccgggcctgg gccgggtccg ggccgggtcg 660

ttggatcccc actacagccc gatactcaag cttgacgaat tcgagtatcc aaggtagtgg 720

actagtgtga cgctgctgac ccctttcttt cccttctgca ggttggtgta cagtagcttc 780

caaattgatt aattcgagcg aacgcgtc 808

<210> 40

<211> 7772
<212> DNA
<213> Artificial Sequence

<220>
<223> 40 4-1 pGL2-SS*-CAG [CMV enhancer+CBA Promoter+intron]-SecNLuc-2A-eGFP-WPRE-3'UTR(108 to 120 polyA)-SS*

<400> 40
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgaca ttgattattg actagttatt aatagtaatc 420

aattacgggg tcattagttc atagcccata tatggagttc cgcgttacat aacttacggt 480

aaatggcccg cctggctgac cgcccaacga cccccgccca ttgacgtcaa taatgacgta 540

tgttcccata gtaacgccaa tagggacttt ccattgacgt caatgggtgg agtatttacg 600

gtaaactgcc cacttggcag tacatcaagt gtatcatatg ccaagtacgc cccctattga 660

cgtcaatgac ggtaaatggc ccgcctggca ttatgcccag tacatgacct tatgggactt 720

tcctacttgg cagtacatct acgtattagt catcgctatt accatggtcg aggtgagccc 780

cacgttctgc ttcactctcc ccatctcccc cccctcccca cccccaattt tgtatttatt 840

tatttttaa ttattttgtg cagcgatggg ggcgggggg ggggggcgc gcgccaggcg 900

gggcggggcg gggcgagggg cggggcgggg cgaggcggaa aggtgcggcg gcagccaatc 960

agagcggcgc gctccgaaag tttcctttta tggcgaggcg gcggcggcgg cggccctata 1020

aaaagcgaag cgcgcggcgg gcgggagtcg ctgcgttgcc ttcgccccgt gccccgctcc 1080

gcgccgcctc gcgccgcccg ccccggctct gactgaccgc gttactccca caggtgagcg 1140

ggcgggacgg cccttctcct ccgggctgta attagcgctt ggtttaatga cggctcgttt 1200

cttttctgtg gctgcgtgaa agccttaaag ggctccggga gggccctttg tgcgggggg 1260

agcggctcgg ggggtgcgtg cgtgtgtgtg tgcgtgggga gcgccgcgtg cggctccgcg 1320

ctgcccggcg gctgtgagcg ctgcgggcgc ggcgcggggc tttgtgcgct ccgcagtgtg 1380

cgcgagggga gcgcggccgg gggcggtgcc ccgcggtgcg gggggggctg cgaggggaac 1440

aaaggctgcg tgcggggtgt gtgcgtgggg gggtgagcag ggggtgtggg cgcggcggtc 1500

gggctgtaac ccccccctgc acccccctcc ccgagttgct gagcacggcc cggcttcggg 1560

tgcggggctc cgtacggggc gtggcgcggg gctcgccgtg ccgggcgggg ggtggcggca 1620

ggtgggggtg ccgggcgggg cggggccgcc tcgggccggg gagggctcgg gggaggggcg 1680

cggcggcccc cggagcgccg gcggctgtcg aggcgcggcg agccgcagcc attgcctttt 1740

atggtaatcg tgcgagaggg cgcagggact tcctttgtcc caaatctgtg cggagccgaa 1800

atctgggagg cgccgccgca ccccctctag cgggcgcggg gcgaagcggt gcggcgccgg 1860

caggaaggaa atgggcgggg agggccttcg tgcgtcgccg cgccgccgtc cccttctccc 1920

tctccagcct cggggctgtc cgcgggggga cggctgcctt cgggggggac ggggcagggc 1980

ggggttcggc ttctggcgtg tgaccggcgg ctctagagcc tctgctaacc atgttcatgc 2040

cttcttcttt ttcctacagc tcctgggcaa cgtgctggtt attgtgctgt ctcatcattt 2100

tggcaaagaa ttgattaatt cgagcgaacg cgtcgccacc atgaactcct tctccacaag 2160

cgccttcggt ccagttgcct tctccctggg cctgctcctg gtgttgcctg ctgccttccc 2220

tgccccagtc ttcacactcg aagatttcgt tggggactgg cgacagacag ccggctacaa 2280

cctggaccaa gtccttgaac agggaggtgt gtccagtttg tttcagaatc tcggggtgtc 2340

cgtaactccg atccaaagga ttgtcctgag cggtgaaaat gggctgaaga tcgacatcca 2400

tgtcatcatc ccgtatgaag gtctgagcgg cgaccaaatg ggccagatcg aaaaaatttt 2460

taaggtggtg taccctgtgg atgatcatca ctttaaggtg atcctgcact atggcacact 2520

ggtaatcgac ggggttacgc cgaacatgat cgactatttc ggacggccgt atgaaggcat 2580

cgccgtgttc gacggcaaaa agatcactgt aacagggacc ctgtggaacg gcaacaaaat 2640

tatcgacgag cgcctgatca accccgacgg ctccctgctg ttccgagtaa ccatcaacgg 2700

agtgaccggc tggcggctgt gcgaacgcat tctggcggct agcgctacta acttcagcct 2760

gctgaagcag gctggagacg tggaggagaa ccctggacct ggaagcggag agggcagagg 2820

aagtctgcta acatgcggtg acgtcgagga gaatcctgga cctggatccg gaatggtgag 2880

caagggcgag gagctgttca ccggggtggt gcccatcctg gtcgagctgg acggcgacgt 2940

aaacggccac aagttcagcg tgtccggcga gggcgagggc gatgccacct acggcaagct 3000

gaccctgaag ttcatctgca ccaccggcaa gctgcccgtg ccctggccca ccctcgtgac 3060

caccctgacc tacggcgtgc agtgcttcag ccgctacccc gaccacatga agcagcacga 3120

cttcttcaag tccgccatgc ccgaaggcta cgtccaggag cgcaccatct tcttcaagga 3180

cgacggcaac tacaagaccc gcgccgaggt gaagttcgag ggcgacaccc tggtgaaccg 3240

catcgagctg aagggcatcg acttcaagga ggacggcaac atcctggggc acaagctgga 3300

gtacaactac aacagccaca acgtctatat catggccgac aagcagaaga acggcatcaa 3360

ggtgaacttc aagatccgcc acaacatcga ggacggcagc gtgcagctcg ccgaccacta 3420

ccagcagaac acccccatcg gcgacggccc cgtgctgctg cccgacaacc actacctgag 3480

cacccagtcc gccctgagca aagaccccaa cgagaagcgc gatcacatgg tcctgctgga 3540

gttcgtgacc gccgccggga tcactctcgg catggacgag ctgtacaagt aaaatcaacc 3600

tctggattac aaaatttgtg aaagattgac tggtattctt aactatgttg ctccttttac 3660

gctatgtgga tacgctgctt taatgccttt gtatcatgct attgcttccc gtatggcttt 3720

cattttctcc tccttgtata aatcctggtt gctgtctctt tatgaggagt tgtggcccgt 3780

tgtcaggcaa cgtggcgtgg tgtgcactgt gtttgctgac gcaacccccа ctggttgggg 3840

cattgccacc acctgtcagc tcctttccgg gactttcgct ttccccctcc ctattgccac 3900

ggcggaactc atcgccgcct gccttgcccg ctgctggaca ggggctcggc tgttgggcac 3960

tgacaattcc gtggtgttgt cggggaaatc atcgtccttt ccttggctgc tcgcctgtgt 4020

tgccacctgg attctgcgcg ggacgtcctt ctgctacgtc ccttcggccc tcaatccagc 4080

ggaccttcct tcccgcggcc tgctgccggc tctgcggcct cttccgcgtc ttcgccttcg 4140

ccctcagacg agtcggatct ccctttgggc cgcctccccg cgctcgcttt cttgctgtcc 4200

aatttctatt aaaggttcct ttgttcccta agtccaacta ctaaactggg ggatattatg 4260

aagggccttg agcatctgga ttctgcctaa taaaaaacat ttattttcat tgcaagctcg 4320

ctttcttgct gtccaatttc tattaaaggt tcctttgttc cctaagtcca actactaaac 4380

tgggggatat tatgaagggc cttgagcatc tggattctgc ctaataaaaa acatttattt 4440

tcattgcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4500

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaactcgg 4560

aaggacatgg tgtggaaagt ccccaggctc cccagcaggc agaagtatgc aaagcatgca 4620

tctcaattag tcagcaacca ggtgtggaaa gtccccaggc tccccagcag gcagaagtat 4680

gcaaagcatg catctcaatt agtcagcaac caaattaaag taacccataa cttcgtatag 4740

catacattat acgaagttat gaagttccta ttctctagaa agtataggaa cttctagtca 4800

cctatttcag catactacgc gcgtagtatg ctgaaatagg tttatcagca cacaatagtc 4860

cattatacgc gcgtataatg gcaattgtgt gctgattggg ttactttaat ttggatccgt 4920

cgaccgatgc ccttgagagc cttcaaccca gtcagctcct tccggtgggc gcggggcatg 4980

actatcgtcg ccgcacttat gactgtcttc tttatcatgc aactcgtagg acaggtgccg 5040

gcagcgctct tccgcttcct cgctcactga ctcgctgcgc tcggtcgttc ggctgcggcg 5100

agcggtatca gctcactcaa aggcggtaat acggttatcc acagaatcag gggataacgc 5160

aggaaagaac atgtgagcaa aaggccagca aaaggccagg aaccgtaaaa aggccgcgtt 5220

gctggcgttt ttccataggc tccgcccccc tgacgagcat cacaaaaatc gacgctcaag 5280

tcagaggtgg cgaaacccga caggactata aagataccag gcgtttcccc ctggaagctc 5340

cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga tacctgtccg cctttctccc 5400

ttcgggaagc gtggcgcttt ctcatagctc acgctgtagg tatctcagtt cggtgtaggt 5460

cgttcgctcc aagctgggct gtgtgcacga acccccccgtt cagcccgacc gctgcgcctt 5520

atccggtaac tatcgtcttg agtccaaccc ggtaagacac gacttatcgc cactggcagc 5580

agccactggt aacaggatta gcagagcgag gtatgtaggc ggtgctacag agttcttgaa 5640

gtggtggcct aactacggct acactagaag aacagtattt ggtatctgcg ctctgctgaa 5700

gccagttacc ttcggaaaaa gagttggtag ctcttgatcc ggcaaacaaa ccaccgctgg 5760

tagcggtggt ttttttgttt gcaagcagca gattacgcgc agaaaaaaag gatctcaaga 5820

agatcctttg atcttttcta cggggtctga cgctcagtgg aacgaaaact cacgttaagg 5880

gattttggtc atgagattat caaaaaggat cttcacctag atccttttaa attaaaaatg 5940

aagttttaaa tcaatctaaa gtatatatga gtaaacttgg tctgacagtt accaatgctt 6000

aatcagtgag gcacctatct cagcgatctg tctatttcgt tcatccatag ttgcctgact 6060

ccccgtcgtg tagataacta cgatacggga gggcttacca tctggcccca gtgctgcaat 6120

gataccgcga gacccacgct caccggctcc agatttatca gcaataaacc agccagccgg 6180

aagggccgag cgcagaagtg gtcctgcaac tttatccgcc tccatccagt ctattaattg 6240

ttgccgggaa gctagagtaa gtagttcgcc agttaatagt ttgcgcaacg ttgttgccat 6300

tgctacaggc atcgtggtgt cacgctcgtc gtttggtatg gcttcattca gctccggttc 6360

ccaacgatca aggcgagtta catgatcccc catgttgtgc aaaaaagcgg ttagctcctt 6420

cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg ttatcactca tggttatggc 6480

agcactgcat aattctctta ctgtcatgcc atccgtaaga tgcttttctg tgactggtga 6540

gtactcaacc aagtcattct gagaatagtg tatgcggcga ccgagttgct cttgcccggc 6600

gtcaatacgg gataataccg cgccacatag cagaacttta aaagtgctca tcattggaaa 6660

acgttcttcg gggcgaaaac tctcaaggat cttaccgctg ttgagatcca gttcgatgta 6720

acccactcgt gcacccaact gatcttcagc atcttttact ttcaccagcg tttctgggtg 6780

agcaaaaaca ggaaggcaaa atgccgcaaa aaagggaata agggcgacac ggaaatgttg 6840

aatactcata ctcttccttt ttcaatatta ttgaagcatt tatcagggtt attgtctcat 6900

gagcggatac atatttgaat gtatttagaa aaataaacaa atagggggttc cgcgcacatt 6960

tccccgaaaa gtgccacctg acgcgccctg tagcggcgca ttaagcgcgg cgggtgtggt 7020

ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta gcgcccgctc ctttcgcttt 7080

cttcccttcc tttctcgcca cgttcgccgg ctttccccgt caagctctaa atcgggggct 7140

ccctttaggg ttccgattta gtgctttacg gcacctcgac cccaaaaaac ttgattaggg 7200

tgatggttca cgtagtgggc catcgccctg atagacggtt tttcgccctt tgacgttgga 7260

gtccacgttc tttaatagtg gactcttgtt ccaaactgga acaacactca accctatctc 7320

ggtctattct tttgatttat aagggatttt gccgatttcg gcctattggt taaaaaatga 7380

gctgatttaa caaaaattta acgcgaattt taacaaaata ttaacgctta caatttgcca 7440

ttcgccattc aggctgcgca actgttggga agggcgatcg gtgcgggcct cttcgctatt 7500

acgccagccc aagctaccat gataagtaag taatattaag gtacgtggag gttttacttg 7560

ctttaaaaaa cctcccacac ctccccctga acctgaaaca taaaatgaat gcaattgttg 7620

ttgttaactt gtttattgca gcttataatg gttacaaata aagcaatagc atcacaaatt 7680

tcacaaataa agcatttttt tcactgcatt ctagttgtgg tttgtccaaa ctcatcaatg 7740

tatcttatgg tactgtaact gagctaacat aa 7772

<210> 41
<211> 7725
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-2 pGL2-SS*-CAG [E1 X3+CBA promoter+introne]-SecNLuc-2A-eGFP-WPRE-3'UTR(108 to 120 polyA)-SS*

<400> 41
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacggg actttccggg gcggggcacg tggtgcacgg gactttccgt 540

gcacgtgcac gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt 600

ccgtgcacgg gactttccgg ggcggggcac gtggtgcacg ggactttccg tgcacgtgca 660

cgggactttc cgggactttc cgggactttc cgtgcaccac gtggggactt tccgtgcacg 720

tcgaggtgag ccccacgttc tgcttcactc tccccatctc ccccccctcc ccacccccaa 780

ttttgtattt atttattttt taattatttt gtgcagcgat gggggcgggg ggggggggag 840

cgcgcgccag gcggggcggg gcggggcgag gggcggggcg gggcgaggcg gaaaggtgcg 900

gcggcagcca atcagagcgg cgcgctccga aagtttcctt ttatggcgag gcggcggcgg 960

cggcggccct ataaaaagcg aagcgcgcgg cgggcgggag tcgctgcgtt gccttcgccc 1020

cgtgccccgc tccgcgccgc ctcgcgccgc ccgccccggc tctgactgac cgcgttactc 1080

ccacaggtga gcgggcggga cggcccttct cctccgggct gtaattagcg cttggtttaa 1140

tgacggctcg tttcttttct gtggctgcgt gaaagcctta aagggctccg ggagggccct 1200

ttgtgcgggg gggagcggct cggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 1260

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 1320

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 1380

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg ggggggtgag caggggtgt 1440

gggcgcggcg gtcgggctgt aacccccccc tgcacccccc tccccgagtt gctgagcacg 1500

gcccggcttc gggtgcgggg ctccgtacgg ggcgtggcgc ggggctcgcc gtgccgggcg 1560

gggggtggcg gcaggtgggg gtgccgggcg gggcggggcc gcctcgggcc ggggagggct 1620

cgggggaggg gcgcggcggc ccccggagcg ccggcggctg tcgaggcgcg gcgagccgca 1680

gccattgcct tttatggtaa tcgtgcgaga gggcgcaggg acttcctttg tcccaaatct 1740

gtgcggagcc gaaatctggg aggcgccgcc gcacccccctc tagcgggcgc ggggcgaagc 1800

ggtgcggcgc cggcaggaag gaaatgggcg gggagggcct tcgtgcgtcg ccgcgccgcc 1860

gtccccttct ccctctccag cctcggggct gtccgcgggg ggacggctgc cttcgggggg 1920

gacggggcag ggcggggttc ggcttctggc gtgtgaccgg cggctctaga gcctctgcta 1980

accatgttca tgccttcttc tttttcctac agctcctggg caacgtgctg gttattgtgc 2040

tgtctcatca ttttggcaaa gaattgatta attcgagcga acgcgtcgcc accatgaact 2100

ccttctccac aagcgccttc ggtccagttg ccttctccct gggcctgctc ctggtgttgc 2160

ctgctgcctt ccctgcccca gtcttcacac tcgaagattt cgttggggac tggcgacaga 2220

cagccggcta caacctggac caagtccttg aacagggagg tgtgtccagt ttgtttcaga 2280

atctcggggt gtccgtaact ccgatccaaa ggattgtcct gagcggtgaa aatgggctga 2340

agatcgacat ccatgtcatc atcccgtatg aaggtctgag cggcgaccaa atgggccaga 2400

tcgaaaaaat ttttaaggtg gtgtaccctg tggatgatca tcactttaag gtgatcctgc 2460

actatggcac actggtaatc gacggggtta cgccgaacat gatcgactat ttcggacggc 2520

cgtatgaagg catcgccgtg ttcgacggca aaaagatcac tgtaacaggg accctgtgga 2580

acggcaacaa aattatcgac gagcgcctga tcaaccccga cggctccctg ctgttccgag 2640

taaccatcaa cggagtgacc ggctggcggc tgtgcgaacg cattctggcg gctagcgcta 2700

ctaacttcag cctgctgaag caggctggag acgtggagga gaaccctgga cctggaagcg 2760

gagagggcag aggaagtctg ctaacatgcg gtgacgtcga ggagaatcct ggacctggat 2820

ccggaatggt gagcaagggc gaggagctgt tcaccggggt ggtgcccatc ctggtcgagc 2880

tggacggcga cgtaaacggc cacaagttca gcgtgtccgg cgagggcgag ggcgatgcca 2940

cctacggcaa gctgaccctg aagttcatct gcaccaccgg caagctgccc gtgccctggc 3000

ccaccctcgt gaccaccctg acctacggcg tgcagtgctt cagccgctac cccgaccaca 3060

tgaagcagca cgacttcttc aagtccgcca tgcccgaagg ctacgtccag gagcgcacca 3120

tcttcttcaa ggacgacggc aactacaaga cccgcgccga ggtgaagttc gagggcgaca 3180

ccctggtgaa ccgcatcgag ctgaagggca tcgacttcaa ggaggacggc aacatcctgg 3240

ggcacaagct ggagtacaac tacaacagcc acaacgtcta tatcatggcc gacaagcaga 3300

agaacggcat caaggtgaac ttcaagatcc gccacaacat cgaggacggc agcgtgcagc 3360

tcgccgacca ctaccagcag aacaccccca tcggcgacgg ccccgtgctg ctgcccgaca 3420

accactacct gagcacccag tccgccctga gcaaagaccc caacgagaag cgcgatcaca 3480

tggtcctgct ggagttcgtg accgccgccg ggatcactct cggcatggac gagctgtaca 3540

agtaaaatca acctctggat tacaaaattt gtgaaagatt gactggtatt cttaactatg 3600

ttgctccttt tacgctatgt ggatacgctg ctttaatgcc tttgtatcat gctattgctt 3660

cccgtatggc tttcattttc tcctccttgt ataaatcctg gttgctgtct ctttatgagg 3720

agttgtggcc cgttgtcagg caacgtggcg tggtgtgcac tgtgtttgct gacgcaaccc 3780

ccactggttg gggcattgcc accacctgtc agctcctttc cgggactttc gctttccccc 3840

tccctattgc cacggcggaa ctcatcgccg cctgccttgc ccgctgctgg acaggggctc 3900

ggctgttggg cactgacaat tccgtggtgt tgtcggggaa atcatcgtcc tttccttggc 3960

tgctcgcctg tgttgccacc tggattctgc gcgggacgtc cttctgctac gtcccttcgg 4020

ccctcaatcc agcggacctt ccttcccgcg gcctgctgcc ggctctgcgg cctcttccgc 4080

gtcttcgcct tcgccctcag acgagtcgga tctccctttg ggccgcctcc ccgcgctcgc 4140

tttcttgctg tccaatttct attaaaggtt cctttgttcc ctaagtccaa ctactaaact 4200

gggggatatt atgaagggcc ttgagcatct ggattctgcc taataaaaaa catttatttt 4260

cattgcaagc tcgctttctt gctgtccaat ttctattaaa ggttcctttg ttccctaagt 4320

ccaactacta aactggggga tattatgaag ggccttgagc atctggattc tgcctaataa 4380

aaaacattta ttttcattgc aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4440

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4500

aaaaaaaact cggaaggaca tggtgtggaa agtccccagg ctccccagca ggcagaagta 4560

tgcaaagcat gcatctcaat tagtcagcaa ccaggtgtgg aaagtcccca ggctccccag 4620

caggcagaag tatgcaaagc atgcatctca attagtcagc aaccaaatta aagtaaccca 4680

taacttcgta tagcatacat tatacgaagt tatgaagttc ctattctcta gaaagtatag 4740

gaacttctag tcacctattt cagcatacta cgcgcgtagt atgctgaaat aggtttatca 4800

gcacacaata gtccattata cgcgcgtata atggcaattg tgtgctgatt gggttacttt 4860

aatttggatc cgtcgaccga tgcccttgag agccttcaac ccagtcagct ccttccggtg 4920

ggcgcggggc atgactatcg tcgccgcact tatgactgtc ttctttatca tgcaactcgt 4980

aggacaggtg ccggcagcgc tcttccgctt cctcgctcac tgactcgctg cgctcggtcg 5040

ttcggctgcg gcgagcggta tcagctcact caaaggcggt aatacggtta tccacagaat 5100

caggggataa cgcaggaaag aacatgtgag caaaaggcca gcaaaaggcc aggaaccgta 5160

aaaaggccgc gttgctggcg tttttccata ggctccgccc ccctgacgag catcacaaaa 5220

atcgacgctc aagtcagagg tggcgaaacc cgacaggact ataaagatac caggcgtttc 5280

cccctggaag ctccctcgtg cgctctcctg ttccgaccct gccgcttacc ggatacctgt 5340

ccgcctttct cccttcggga agcgtggcgc tttctcatag ctcacgctgt aggtatctca 5400

gttcggtgta ggtcgttcgc tccaagctgg gctgtgtgca cgaacccccc gttcagcccg 5460

accgctgcgc cttatccggt aactatcgtc ttgagtccaa cccggtaaga cacgacttat 5520

cgccactggc agcagccact ggtaacagga ttagcagagc gaggtatgta ggcggtgcta 5580

cagagttctt gaagtggtgg cctaactacg gctacactag aagaacagta tttggtatct 5640

gcgctctgct gaagccagtt accttcggaa aaagagttgg tagctcttga tccggcaaac 5700

aaaccaccgc tggtagcggt ggtttttttg tttgcaagca gcagattacg cgcagaaaaa 5760

aaggatctca agaagatcct ttgatctttt ctacggggtc tgacgctcag tggaacgaaa 5820

actcacgtta agggattttg gtcatgagat tatcaaaaag gatcttcacc tagatccttt 5880

taaattaaaa atgaagtttt aaatcaatct aaagtatata tgagtaaact tggtctgaca 5940

gttaccaatg cttaatcagt gaggcaccta tctcagcgat ctgtctattt cgttcatcca 6000

tagttgcctg actccccgtc gtgtagataa ctacgatacg ggagggctta ccatctggcc 6060

ccagtgctgc aatgataccg cgagacccac gctcaccggc tccagattta tcagcaataa 6120

accagccagc cggaagggcc gagcgcagaa gtggtcctgc aactttatcc gcctccatcc 6180

agtctattaa ttgttgccgg gaagctagag taagtagttc gccagttaat agtttgcgca 6240

acgttgttgc cattgctaca ggcatcgtgg tgtcacgctc gtcgtttggt atggcttcat 6300

tcagctccgg ttcccaacga tcaaggcgag ttacatgatc ccccatgttg tgcaaaaaag 6360

cggttagctc cttcggtcct ccgatcgttg tcagaagtaa gttggccgca gtgttatcac 6420

tcatggttat ggcagcactg cataattctc ttactgtcat gccatccgta agatgctttt 6480

ctgtgactgg tgagtactca accaagtcat tctgagaata gtgtatgcgg cgaccgagtt 6540

gctcttgccc ggcgtcaata cgggataata ccgcgccaca tagcagaact ttaaaagtgc 6600

tcatcattgg aaaacgttct tcggggcgaa aactctcaag gatcttaccg ctgttgagat 6660

ccagttcgat gtaacccact cgtgcaccca actgatcttc agcatctttt actttcacca 6720

gcgtttctgg gtgagcaaaa acaggaaggc aaaatgccgc aaaaaaggga ataagggcga 6780

cacggaaatg ttgaatactc atactcttcc tttttcaata ttattgaagc atttatcagg 6840

gttattgtct catgagcgga tacatatttg aatgtattta gaaaaataaa caaatagggg 6900

ttccgcgcac atttccccga aaagtgccac ctgacgcgcc ctgtagcggc gcattaagcg 6960

cggcgggtgt ggtggttacg cgcagcgtga ccgctacact tgccagcgcc ctagcgcccg 7020

ctcctttcgc tttcttccct tcctttctcg ccacgttcgc cggctttccc cgtcaagctc 7080

taaatcgggg gctcccttta gggttccgat ttagtgcttt acggcacctc gaccccaaaa 7140

aacttgatta gggtgatggt tcacgtagtg ggccatcgcc ctgatagacg gtttttcgcc 7200

ctttgacgtt ggagtccacg ttctttaata gtggactctt gttccaaact ggaacaacac 7260

tcaaccctat ctcggtctat tcttttgatt tataagggat tttgccgatt tcggcctatt 7320

ggttaaaaaa tgagctgatt taacaaaaat ttaacgcgaa ttttaacaaa atattaacgc 7380

ttacaatttg ccattcgcca ttcaggctgc gcaactgttg ggaagggcga tcggtgcggg 7440

cctcttcgct attacgccag cccaagctac catgataagt aagtaatatt aaggtacgtg 7500

gaggttttac ttgctttaaa aaacctccca cacctccccc tgaacctgaa acataaaatg 7560

aatgcaattg ttgttgttaa cttgtttatt gcagcttata atggttacaa ataaagcaat 7620

agcatcacaa atttcacaaa taaagcattt ttttcactgc attctagttg tggtttgtcc 7680

aaactcatca atgtatctta tggtactgta actgagctaa cataa 7725

<210> 42
<211> 7658
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-3 pGL2-SS*-CAG [E2(U100)+CBA promoter+introne]-SecNLuc-2A-eGFP-WPRE-3'UTR(108 to 120 polyA)-SS*

<400> 42
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgactggg actttccact agacatgaca cagcaatctg 420

atatgcttgc gtgagaagag gattcatatc ctgggacttt ccacagattt taccggaagt 480

tgttagatgc ttgcgtgaga agatctaaca tgacacagca atccttagtg ggactttcca 540

agtatgtggg gcggggagta tacatgacac agcaattgat cattaccgga agtttatagg 600

tgggactttc cagacctatg cttgcgtgag aagaaaggtc tgggactttc cagtcgaggt 660

gagccccacg ttctgcttca ctctccccat ctccccccccc tccccacccc caattttgta 720

tttatttatt ttttaattat tttgtgcagc gatgggggcg gggggggggg gggcgcgcgc 780

caggcggggc ggggcggggc gaggggcggg gcggggcgag gcggaaaggt gcggcggcag 840

ccaatcagag cggcgcgctc cgaaagtttc cttttatggc gaggcggcgg cggcggcggc 900

cctataaaaa gcgaagcgcg cggcgggcgg gagtcgctgc gttgccttcg ccccgtgccc 960

cgctccgcgc cgcctcgcgc cgcccgcccc ggctctgact gaccgcgtta ctcccacagg 1020

tgagcgggcg ggacggccct tctcctccgg gctgtaatta gcgcttggtt taatgacggc 1080

tcgtttcttt tctgtggctg cgtgaaagcc ttaaagggct ccgggagggc cctttgtgcg 1140

gggggggagcg gctcgggggg tgcgtgcgtg tgtgtgtgcg tggggagcgc cgcgtgcggc 1200

tccgcgctgc ccggcggctg tgagcgctgc gggcgcggcg cggggctttg tgcgctccgc 1260

agtgtgcgcg aggggagcgc ggccgggggc ggtgccccgc ggtgcggggg gggctgcgag 1320

gggaacaaag gctgcgtgcg gggtgtgtgc gtgggggggt gagcaggggg tgtgggcgcg 1380

gcggtcgggc tgtaaccccc ccctgcaccc ccctccccga gttgctgagc acggcccggc 1440

ttcgggtgcg gggctccgta cggggcgtgg cgcggggctc gccgtgccgg gcgggggggtg 1500

gcggcaggtg ggggtgccgg gcggggcggg gccgcctcgg gccggggagg gctcggggga 1560

ggggcgcggc ggcccccgga gcgccggcgg ctgtcgaggc gcggcgagcc gcagccattg 1620

ccttttatgg taatcgtgcg agagggcgca gggacttcct ttgtcccaaa tctgtgcgga 1680

gccgaaatct gggaggcgcc gccgcacccc ctctagcggg cgcggggcga agcggtgcgg 1740

cgccggcagg aaggaaatgg gcggggaggg ccttcgtgcg tcgccgcgcc gccgtcccct 1800

tctccctctc cagcctcggg gctgtccgcg gggggacggc tgccttcggg ggggacgggg 1860

cagggcgggg ttcggcttct ggcgtgtgac cggcggctct agagcctctg ctaaccatgt 1920

tcatgccttc ttctttttcc tacagctcct gggcaacgtg ctggttattg tgctgtctca 1980

tcattttggc aaagaattga ttaattcgag cgaacgcgtc gccaccatga actccttctc 2040

cacaagcgcc ttcggtccag ttgccttctc cctgggcctg ctcctggtgt tgcctgctgc 2100

cttccctgcc ccagtcttca cactcgaaga tttcgttggg gactggcgac agacagccgg 2160

ctacaacctg gaccaagtcc ttgaacaggg aggtgtgtcc agtttgtttc agaatctcgg 2220

ggtgtccgta actccgatcc aaaggattgt cctgagcggt gaaaatgggc tgaagatcga 2280

catccatgtc atcatcccgt atgaaggtct gagcggcgac caaatgggcc agatcgaaaa 2340

aatttttaag gtggtgtacc ctgtggatga tcatcacttt aaggtgatcc tgcactatgg 2400

cacactggta atcgacgggg ttacgccgaa catgatcgac tatttcggac ggccgtatga 2460

aggcatcgcc gtgttcgacg gcaaaaagat cactgtaaca gggaccctgt ggaacggcaa 2520

caaaattatc gacgagcgcc tgatcaaccc cgacggctcc ctgctgttcc gagtaaccat 2580

caacggagtg accggctggc ggctgtgcga acgcattctg gcggctagcg ctactaactt 2640

cagcctgctg aagcaggctg gagacgtgga ggagaaccct ggacctggaa gcggagaggg 2700

cagaggaagt ctgctaacat gcggtgacgt cgaggagaat cctggacctg gatccggaat 2760

ggtgagcaag ggcgaggagc tgttcaccgg ggtggtgccc atcctggtcg agctggacgg 2820

cgacgtaaac ggccacaagt tcagcgtgtc cggcgagggc gagggcgatg ccacctacgg 2880

caagctgacc ctgaagttca tctgcaccac cggcaagctg cccgtgccct ggcccaccct 2940

cgtgaccacc ctgacctacg gcgtgcagtg cttcagccgc taccccgacc acatgaagca 3000

gcacgacttc ttcaagtccg ccatgcccga aggctacgtc caggagcgca ccatcttctt 3060

caaggacgac ggcaactaca agacccgcgc cgaggtgaag ttcgagggcg acaccctggt 3120

gaaccgcatc gagctgaagg gcatcgactt caaggaggac ggcaacatcc tggggcacaa 3180

gctggagtac aactacaaca gccacaacgt ctatatcatg gccgacaagc agaagaacgg 3240

catcaaggtg aacttcaaga tccgccacaa catcgaggac ggcagcgtgc agctcgccga 3300

ccactaccag cagaacaccc ccatcggcga cggccccgtg ctgctgcccg acaaccacta 3360

cctgagcacc cagtccgccc tgagcaaaga ccccaacgag aagcgcgatc acatggtcct 3420

gctggagttc gtgaccgccg ccgggatcac tctcggcatg gacgagctgt acaagtaaaa 3480

tcaacctctg gattacaaaa tttgtgaaag attgactggt attcttaact atgttgctcc 3540

ttttacgcta tgtggatacg ctgctttaat gcctttgtat catgctattg cttcccgtat 3600

ggctttcatt ttctcctcct tgtataaatc ctggttgctg tctctttatg aggagttgtg 3660

gcccgttgtc aggcaacgtg gcgtggtgtg cactgtgttt gctgacgcaa cccccactgg 3720

ttggggcatt gccaccacct gtcagctcct ttccgggact ttcgctttcc ccctccctat 3780

tgccacggcg gaactcatcg ccgcctgcct tgcccgctgc tggacagggg ctcggctgtt 3840

gggcactgac aattccgtgg tgttgtcggg gaaatcatcg tcctttcctt ggctgctcgc 3900

ctgtgttgcc acctggattc tgcgcgggac gtccttctgc tacgtccctt cggccctcaa 3960

tccagcggac cttccttccc gcggcctgct gccggctctg cggcctcttc cgcgtcttcg 4020

ccttcgccct cagacgagtc ggatctccct ttgggccgcc tccccgcgct cgctttcttg 4080

ctgtccaatt tctattaaag gttcctttgt tccctaagtc caactactaa actgggggat 4140

attatgaagg gccttgagca tctggattct gcctaataaa aaacatttat tttcattgca 4200

agctcgcttt cttgctgtcc aatttctatt aaaggttcct ttgttcccta agtccaacta 4260

ctaaactggg ggatattatg aagggccttg agcatctgga ttctgcctaa taaaaaacat 4320

ttattttcat tgcaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4380

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 4440

actcggaagg acatggtgtg gaaagtcccc aggctcccca gcaggcagaa gtatgcaaag 4500

catgcatctc aattagtcag caaccaggtg tggaaagtcc ccaggctccc cagcaggcag 4560

aagtatgcaa agcatgcatc tcaattagtc agcaaccaaa ttaaagtaac ccataacttc 4620

gtatagcata cattatacga agttatgaag ttcctattct ctagaaagta taggaacttc 4680

tagtcaccta tttcagcata ctacgcgcgt agtatgctga aataggttta tcagcacaca 4740

atagtccatt atacgcgcgt ataatggcaa ttgtgtgctg attgggttac tttaatttgg 4800

atccgtcgac cgatgccctt gagagccttc aacccagtca gctccttccg gtgggcgcgg 4860

ggcatgacta tcgtcgccgc acttatgact gtcttcttta tcatgcaact cgtaggacag 4920

gtgccggcag cgctcttccg cttcctcgct cactgactcg ctgcgctcgg tcgttcggct 4980

gcggcgagcg gtatcagctc actcaaaggc ggtaatacgg ttatccacag aatcagggga 5040

taacgcagga aagaacatgt gagcaaaagg ccagcaaaag gccaggaacc gtaaaaaggc 5100

cgcgttgctg gcgtttttcc ataggctccg ccccccctgac gagcatcaca aaaatcgacg 5160

ctcaagtcag aggtggcgaa acccgacagg actataaaga taccaggcgt ttcccccctgg 5220

aagctccctc gtgcgctctc ctgttccgac cctgccgctt accggatacc tgtccgcctt 5280

tctcccttcg ggaagcgtgg cgctttctca tagctcacgc tgtaggtatc tcagttcggt 5340

gtaggtcgtt cgctccaagc tgggctgtgt gcacgaaccc cccgttcagc ccgaccgctg 5400

cgccttatcc ggtaactatc gtcttgagtc caacccggta agacacgact tatcgccact 5460

ggcagcagcc actggtaaca ggattagcag agcgaggtat gtaggcggtg ctacagagtt 5520

cttgaagtgg tggcctaact acggctacac tagaagaaca gtatttggta tctgcgctct 5580

gctgaagcca gttaccttcg gaaaaagagt tggtagctct tgatccggca aacaaaccac 5640

cgctggtagc ggtggttttt ttgtttgcaa gcagcagatt acgcgcagaa aaaaaggatc 5700

tcaagaagat cctttgatct tttctacggg gtctgacgct cagtggaacg aaaactcacg 5760

ttaagggatt ttggtcatga gattatcaaa aaggatcttc acctagatcc ttttaaatta 5820

aaaatgaagt tttaaatcaa tctaaagtat atatgagtaa acttggtctg acagttacca 5880

atgcttaatc agtgaggcac ctatctcagc gatctgtcta tttcgttcat ccatagttgc 5940

ctgactcccc gtcgtgtaga taactacgat acgggagggc ttaccatctg gccccagtgc 6000

tgcaatgata ccgcgagacc cacgctcacc ggctccagat ttatcagcaa taaaccagcc 6060

agccggaagg gccgagcgca gaagtggtcc tgcaacttta tccgcctcca tccagtctat 6120

taattgttgc cgggaagcta gagtaagtag ttcgccagtt aatagtttgc gcaacgttgt 6180

tgccattgct acaggcatcg tggtgtcacg ctcgtcgttt ggtatggctt cattcagctc 6240

cggttcccaa cgatcaaggc gagttacatg atcccccatg ttgtgcaaaa aagcggttag 6300

ctccttcggt cctccgatcg ttgtcagaag taagttggcc gcagtgttat cactcatggt 6360

tatggcagca ctgcataatt ctcttactgt catgccatcc gtaagatgct tttctgtgac 6420

tggtgagtac tcaaccaagt cattctgaga atagtgtatg cggcgaccga gttgctcttg 6480

cccggcgtca atacgggata ataccgcgcc acatagcaga actttaaaag tgctcatcat 6540

tggaaaacgt tcttcggggc gaaaactctc aaggatctta ccgctgttga gatccagttc 6600

gatgtaaccc actcgtgcac ccaactgatc ttcagcatct tttactttca ccagcgtttc 6660

tgggtgagca aaaacaggaa ggcaaaatgc cgcaaaaaag ggaataaggg cgacacggaa 6720

atgttgaata ctcatactct tccttttca atattattga agcatttatc agggttattg 6780

tctcatgagc ggatacatat ttgaatgtat ttagaaaaat aaacaaatag gggttccgcg 6840

cacatttccc cgaaaagtgc cacctgacgc gccctgtagc ggcgcattaa gcgcggcggg 6900

tgtggtggtt acgcgcagcg tgaccgctac acttgccagc gccctagcgc ccgctccttt 6960

cgctttcttc ccttcctttc tcgccacgtt cgccggcttt ccccgtcaag ctctaaatcg 7020

ggggctccct ttagggttcc gatttagtgc tttacggcac ctcgacccca aaaaacttga 7080

ttagggtgat ggttcacgta gtgggccatc gccctgatag acggtttttc gccctttgac 7140

gttggagtcc acgttcttta atagtggact cttgttccaa actggaacaa cactcaaccc 7200

tatctcggtc tattcttttg atttataagg gattttgccg atttcggcct attggttaaa 7260

aaatgagctg atttaacaaa aatttaacgc gaattttaac aaaatattaa cgcttacaat 7320

ttgccattcg ccattcaggc tgcgcaactg ttgggaaggg cgatcggtgc gggcctcttc 7380

gctattacgc cagcccaagc taccatgata agtaagtaat attaaggtac gtggaggttt 7440

tacttgcttt aaaaaacctc ccacacctcc ccctgaacct gaaacataaa atgaatgcaa 7500

ttgttgttgt taacttgttt attgcagctt ataatggtta caaataaagc aatagcatca 7560

caaatttcac aaataaagca ttttttttcac tgcattctag ttgtggtttg tccaaactca 7620

tcaatgtatc ttatggtact gtaactgagc taacataa 7658

<210> 43
<211> 6850
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-4 pGL2-SS*-CAG [E1 X3+CBA
promoter+UTR1]-SecNLuc-2A-eGFP-WPRE-3'UTR(108 to 120 polyA)-SS*

<400> 43
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacggga ctttccgggg cggggcacgt ggtgcacggg 420

actttccgtg cacgtgcacg ggactttccg ggactttccg ggactttccg tgcaccacgt 480

ggggactttc cgtgcacggg actttccggg gcggggcacg tggtgcacgg gactttccgt 540

gcacgtgcac gggactttcc gggactttcc gggactttcc gtgcaccacg tggggacttt 600

ccgtgcacgg gactttccgg ggcggggcac gtggtgcacg ggactttccg tgcacgtgca 660

cgggactttc cgggactttc cgggactttc cgtgcaccac gtggggactt tccgtgcacg 720

tcgaggtgag ccccacgttc tgcttcactc tccccatctc ccccccctcc ccacccccaa 780

ttttgtattt atttattttt taattatttt gtgcagcgat gggggcgggg gggggggggg 840

cgcgcgccag gcggggcggg gcggggcgag gggcggggcg gggcgaggcg gaaaggtgcg 900

gcggcagcca atcagagcgg cgcgctccga aagtttcctt ttatggcgag gcggcggcgg 960

cggcggccct ataaaaagcg aagcgcgcgg cgggcgctgc cttctccctc ctgtgagttt 1020

ggtaagtcga cgggccgggc ctgggccggg tccgggccgg gtcgttggat ccccactaca 1080

gcccgatact caagcttgac gaattcgagt atccaaggta gtggactagt gtgacgctgc 1140

tgacccctttt ctttcccttc tgcaggttgg tgtacagtag cttccaaatt gattaattcg 1200

agcgaacgcg tcgccaccat gaactccttc tccacaagcg ccttcggtcc agttgccttc 1260

tccctgggcc tgctcctggt gttgcctgct gccttccctg ccccagtctt cacactcgaa 1320

gatttcgttg gggactggcg acagacagcc ggctacaacc tggaccaagt ccttgaacag 1380

ggaggtgtgt ccagtttgtt tcagaatctc ggggtgtccg taactccgat ccaaaggatt 1440

gtcctgagcg gtgaaaatgg gctgaagatc gacatccatg tcatcatccc gtatgaaggt 1500

ctgagcggcg accaaatggg ccagatcgaa aaaattttta aggtggtgta ccctgtggat 1560

gatcatcact ttaaggtgat cctgcactat ggcacactgg taatcgacgg ggttacgccg 1620

aacatgatcg actatttcgg acggccgtat gaaggcatcg ccgtgttcga cggcaaaaag 1680

atcactgtaa cagggaccct gtggaacggc aacaaaatta tcgacgagcg cctgatcaac 1740

cccgacggct ccctgctgtt ccgagtaacc atcaacggag tgaccggctg gcggctgtgc 1800

gaacgcattc tggcggctag cgctactaac ttcagcctgc tgaagcaggc tggagacgtg 1860

gaggagaacc ctggacctgg aagcggagag ggcagaggaa gtctgctaac atgcggtgac 1920

gtcgaggaga atcctggacc tggatccgga atggtgagca agggcgagga gctgttcacc 1980

ggggtggtgc ccatcctggt cgagctggac ggcgacgtaa acggccacaa gttcagcgtg 2040

tccggcgagg gcgagggcga tgccacctac ggcaagctga ccctgaagtt catctgcacc 2100

accggcaagc tgcccgtgcc ctggcccacc ctcgtgacca ccctgaccta cggcgtgcag 2160

tgcttcagcc gctaccccga ccacatgaag cagcacgact tcttcaagtc cgccatgccc 2220

gaaggctacg tccaggagcg caccatcttc ttcaaggacg acggcaacta caagacccgc 2280

gccgaggtga agttcgaggg cgacaccctg gtgaaccgca tcgagctgaa gggcatcgac 2340

ttcaaggagg acggcaacat cctggggcac aagctggagt acaactacaa cagccacaac 2400

gtctatatca tggccgacaa gcagaagaac ggcatcaagg tgaacttcaa gatccgccac 2460

aacatcgagg acggcagcgt gcagctcgcc gaccactacc agcagaacac ccccatcggc 2520

gacggccccg tgctgctgcc cgacaaccac tacctgagca cccagtccgc cctgagcaaa 2580

gaccccaacg agaagcgcga tcacatggtc ctgctggagt tcgtgaccgc cgccgggatc 2640

actctcggca tggacgagct gtacaagtaa aatcaacctc tggattacaa aatttgtgaa 2700

agattgactg gtattcttaa ctatgttgct ccttttacgc tatgtggata cgctgcttta 2760

atgcctttgt atcatgctat tgcttcccgt atggctttca ttttctcctc cttgtataaa 2820

tcctggttgc tgtctcttta tgaggagttg tggcccgttg tcaggcaacg tggcgtggtg 2880

tgcactgtgt ttgctgacgc aacccccact ggttggggca ttgccaccac ctgtcagctc 2940

ctttccggga ctttcgcttt ccccctccct attgccacgg cggaactcat cgccgcctgc 3000

cttgcccgct gctggacagg ggctcggctg ttgggcactg acaattccgt ggtgttgtcg 3060

gggaaatcat cgtcctttcc ttggctgctc gcctgtgttg ccacctggat tctgcgcggg 3120

acgtccttct gctacgtccc ttcggccctc aatccagcgg accttccttc ccgcggcctg 3180

ctgccggctc tgcggcctct tccgcgtctt cgccttcgcc ctcagacgag tcggatctcc 3240

ctttgggccg cctccccgcg ctcgctttct tgctgtccaa tttctattaa aggttccttt 3300

gttccctaag tccaactact aaactggggg atattatgaa gggccttgag catctggatt 3360

ctgcctaata aaaaacattt attttcattg caagctcgct ttcttgctgt ccaatttcta 3420

ttaaaggttc ctttgttccc taagtccaac tactaaactg ggggatatta tgaagggcct 3480

tgagcatctg gattctgcct aataaaaaac atttattttc attgcaaaaa aaaaaaaaaa 3540

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3600

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaactcggaa ggacatggtg tggaaagtcc 3660

ccaggctccc cagcaggcag aagtatgcaa agcatgcatc tcaattagtc agcaaccagg 3720

tgtggaaagt ccccaggctc cccagcaggc agaagtatgc aaagcatgca tctcaattag 3780

tcagcaacca aattaaagta acccataact tcgtatagca tacattatac gaagttatga 3840

agttcctatt ctctagaaag tataggaact tctagtcacc tatttcagca tactacgcgc 3900

gtagtatgct gaaataggtt tatcagcaca caatagtcca ttatacgcgc gtataatggc 3960

aattgtgtgc tgattgggtt actttaattt ggatccgtcg accgatgccc ttgagagcct 4020

tcaacccagt cagctccttc cggtgggcgc ggggcatgac tatcgtcgcc gcacttatga 4080

ctgtcttctt tatcatgcaa ctcgtaggac aggtgccggc agcgctcttc cgcttcctcg 4140

ctcactgact cgctgcgctc ggtcgttcgg ctgcggcgag cggtatcagc tcactcaaag 4200

gcggtaatac ggttatccac agaatcaggg gataacgcag gaaagaacat gtgagcaaaa 4260

ggccagcaaa aggccaggaa ccgtaaaaag gccgcgttgc tggcgttttt ccataggctc 4320

cgccccctg acgagcatca caaaaatcga cgctcaagtc agaggtggcg aaacccgaca 4380

ggactataaa gataccaggc gtttcccct ggaagctccc tcgtgcgctc tcctgttccg 4440

accctgccgc ttaccggata cctgtccgcc tttctccctt cgggaagcgt ggcgctttct 4500

catagctcac gctgtaggta tctcagttcg gtgtaggtcg ttcgctccaa gctgggctgt 4560

gtgcacgaac cccccgttca gcccgaccgc tgcgccttat ccggtaacta tcgtcttgag 4620

tccaacccgg taagacacga cttatcgcca ctggcagcag ccactggtaa caggattagc 4680

agagcgaggt atgtaggcgg tgctacagag ttcttgaagt ggtggcctaa ctacggctac 4740

actagaagaa cagtatttgg tatctgcgct ctgctgaagc cagttacctt cggaaaaaga 4800

gttggtagct cttgatccgg caaacaaacc accgctggta gcggtggttt ttttgtttgc 4860

aagcagcaga ttacgcgcag aaaaaaagga tctcaagaag atcctttgat cttttctacg 4920

gggtctgacg ctcagtggaa cgaaaactca cgttaaggga ttttggtcat gagattatca 4980

aaaaggatct tcacctagat ccttttaaat taaaaatgaa gttttaaatc aatctaaagt 5040

atatatgagt aaacttggtc tgacagttac caatgcttaa tcagtgaggc acctatctca 5100

gcgatctgtc tatttcgttc atccatagtt gcctgactcc ccgtcgtgta gataactacg 5160

atacgggagg gcttaccatc tggccccagt gctgcaatga taccgcgaga cccacgctca 5220

ccggctccag atttatcagc aataaaccag ccagccggaa gggccgagcg cagaagtggt 5280

cctgcaactt tatccgcctc catccagtct attaattgtt gccgggaagc tagagtaagt 5340

agttcgccag ttaatagttt gcgcaacgtt gttgccattg ctacaggcat cgtggtgtca 5400

cgctcgtcgt ttggtatggc ttcattcagc tccggttccc aacgatcaag gcgagttaca 5460

tgatccccca tgttgtgcaa aaaagcggtt agctccttcg gtcctccgat cgttgtcaga 5520

agtaagttgg ccgcagtgtt atcactcatg gttatggcag cactgcataa ttctcttact 5580

gtcatgccat ccgtaagatg cttttctgtg actggtgagt actcaaccaa gtcattctga 5640

gaatagtgta tgcggcgacc gagttgctct tgcccggcgt caatacggga taataccgcg 5700

ccacatagca gaactttaaa agtgctcatc attggaaaac gttcttcggg gcgaaaactc 5760

tcaaggatct taccgctgtt gagatccagt tcgatgtaac ccactcgtgc acccaactga 5820

tcttcagcat cttttacttt caccagcgtt tctgggtgag caaaaacagg aaggcaaaat 5880

gccgcaaaaa agggaataag ggcgacacgg aaatgttgaa tactcatact cttccttttt 5940

caatattatt gaagcattta tcagggttat tgtctcatga gcggatacat atttgaatgt 6000

atttagaaaa ataaacaaat aggggttccg cgcacatttc cccgaaaagt gccacctgac 6060

gcgccctgta gcggcgcatt aagcgcggcg ggtgtggtgg ttacgcgcag cgtgaccgct 6120

acacttgcca gcgccctagc gcccgctcct ttcgctttct tcccttcctt tctcgccacg 6180

ttcgccggct ttccccgtca agctctaaat cgggggctcc ctttagggtt ccgatttagt 6240

gctttacggc acctcgaccc caaaaaactt gattagggtg atggttcacg tagtgggcca 6300

tcgccctgat agacggtttt tcgcccttg acgttggagt ccacgttctt taatagtgga 6360

ctcttgttcc aaactggaac aacactcaac cctatctcgg tctattcttt tgatttataa 6420

gggattttgc cgatttcggc ctattggtta aaaaatgagc tgatttaaca aaaatttaac 6480

gcgaatttta acaaaatatt aacgcttaca atttgccatt cgccattcag gctgcgcaac 6540

tgttgggaag ggcgatcggt gcgggcctct tcgctattac gccagcccaa gctaccatga 6600

taagtaagta atattaaggt acgtggaggt tttacttgct ttaaaaaacc tcccacacct 6660

ccccctgaac ctgaaacata aaatgaatgc aattgttgtt gttaacttgt ttattgcagc 6720

ttataatggt tacaaataaa gcaatagcat cacaaatttc acaaataaag catttttttc 6780

actgcattct agttgtggtt tgtccaaact catcaatgta tcttatggta ctgtaactga 6840

gctaacataa 6850

<210> 44
<211> 6783
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-5-pGL2-SS*-CAG [E2 (U100)+CBA
promoter+UTR1]-SecNLuc-2A-eGFP-WPRE-3'UTR (108 to 120 polyA)-SS*

<400> 44
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgactggg actttccact agacatgaca cagcaatctg 420

atatgcttgc gtgagaagag gattcatatc ctgggacttt ccacagattt taccggaagt 480

tgttagatgc ttgcgtgaga agatctaaca tgacacagca atccttagtg ggactttcca 540

agtatgtggg gcggggagta tacatgacac agcaattgat cattaccgga agtttatagg 600

tgggactttc cagacctatg cttgcgtgag aagaaaggtc tgggactttc cagtcgaggt 660

gagccccacg ttctgcttca ctctccccat ctccccccccc tccccacccc caattttgta 720

tttatttatt ttttaattat tttgtgcagc gatgggggcg gggggggggg gggcgcgcgc 780

caggcggggc ggggcggggc gaggggcggg gcggggcgag gcggaaaggt gcggcggcag 840

ccaatcagag cggcgcgctc cgaaagtttc cttttatggc gaggcggcgg cggcggcggc 900

cctataaaaa gcgaagcgcg cggcgggcgc tgccttctcc ctcctgtgag tttggtaagt 960

cgacgggccg ggcctgggcc gggtccgggc cgggtcgttg gatccccact acagcccgat 1020

actcaagctt gacgaattcg agtatccaag gtagtggact agtgtgacgc tgctgacccc 1080

tttctttccc ttctgcaggt tggtgtacag tagcttccaa attgattaat tcgagcgaac 1140

gcgtcgccac catgaactcc ttctccacaa gcgccttcgg tccagttgcc ttctccctgg 1200

gcctgctcct ggtgttgcct gctgccttcc ctgccccagt cttcacactc gaagatttcg 1260

ttggggactg gcgacagaca gccggctaca acctggacca agtccttgaa cagggaggtg 1320

tgtccagttt gtttcagaat ctcggggtgt ccgtaactcc gatccaaagg attgtcctga 1380

gcggtgaaaa tgggctgaag atcgacatcc atgtcatcat cccgtatgaa ggtctgagcg 1440

gcgaccaaat gggccagatc gaaaaaattt ttaaggtggt gtaccctgtg gatgatcatc 1500

actttaaggt gatcctgcac tatggcacac tggtaatcga cggggttacg ccgaacatga 1560

tcgactattt cggacggccg tatgaaggca tcgccgtgtt cgacggcaaa aagatcactg 1620

taacagggac cctgtggaac ggcaacaaaa ttatcgacga gcgcctgatc aaccccgacg 1680

gctccctgct gttccgagta accatcaacg gagtgaccgg ctggcggctg tgcgaacgca 1740

ttctggcggc tagcgctact aacttcagcc tgctgaagca ggctggagac gtggaggaga 1800

accctggacc tggaagcgga gagggcagag gaagtctgct aacatgcggt gacgtcgagg 1860

agaatcctgg acctggatcc ggaatggtga gcaagggcga ggagctgttc accggggtgg 1920

tgcccatcct ggtcgagctg gacggcgacg taaacggcca caagttcagc gtgtccggcg 1980

agggcgaggg cgatgccacc tacggcaagc tgaccctgaa gttcatctgc accaccggca 2040

agctgcccgt gccctggccc accctcgtga ccaccctgac ctacggcgtg cagtgcttca 2100

gccgctaccc cgaccacatg aagcagcacg acttcttcaa gtccgccatg cccgaaggct 2160

acgtccagga gcgcaccatc ttcttcaagg acgacggcaa ctacaagacc cgcgccgagg 2220

tgaagttcga gggcgacacc ctggtgaacc gcatcgagct gaagggcatc gacttcaagg 2280

aggacggcaa catcctgggg cacaagctgg agtacaacta caacagccac aacgtctata 2340

tcatggccga caagcagaag aacggcatca aggtgaactt caagatccgc cacaacatcg 2400

aggacggcag cgtgcagctc gccgaccact accagcagaa cacccccatc ggcgacggcc 2460

ccgtgctgct gcccgacaac cactacctga gcacccagtc cgccctgagc aaagacccca 2520

acgagaagcg cgatcacatg gtcctgctgg agttcgtgac cgccgccggg atcactctcg 2580

gcatggacga gctgtacaag taaaatcaac ctctggatta caaaatttgt gaaagattga 2640

ctggtattct taactatgtt gctcctttta cgctatgtgg atacgctgct ttaatgcctt 2700

tgtatcatgc tattgcttcc cgtatggctt tcattttctc ctccttgtat aaatcctggt 2760

tgctgtctct ttatgaggag ttgtggcccg ttgtcaggca acgtggcgtg gtgtgcactg 2820

tgtttgctga cgcaaccccc actggttggg gcattgccac cacctgtcag ctcctttccg 2880

ggactttcgc tttccccctc cctattgcca cggcggaact catcgccgcc tgccttgccc 2940

gctgctggac aggggctcgg ctgttgggca ctgacaattc cgtggtgttg tcggggaaat 3000

catcgtcctt tccttggctg ctcgcctgtg ttgccacctg gattctgcgc gggacgtcct 3060

tctgctacgt cccttcggcc ctcaatccag cggaccttcc ttcccgcggc ctgctgccgg 3120

ctctgcggcc tcttccgcgt cttcgccttc gccctcagac gagtcggatc tccctttggg 3180

ccgcctcccc gcgctcgctt tcttgctgtc caatttctat taaaggttcc tttgttccct 3240

aagtccaact actaaactgg gggatattat gaagggcctt gagcatctgg attctgccta 3300

ataaaaaaca tttattttca ttgcaagctc gctttcttgc tgtccaattt ctattaaagg 3360

ttcctttgtt ccctaagtcc aactactaaa ctgggggata ttatgaaggg ccttgagcat 3420

ctggattctg cctaataaaa aacatttatt ttcattgcaa aaaaaaaaaa aaaaaaaaaa 3480

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3540

aaaaaaaaaa aaaaaaaaaa aaaaaactcg gaaggacatg gtgtggaaag tccccaggct 3600

ccccagcagg cagaagtatg caaagcatgc atctcaatta gtcagcaacc aggtgtggaa 3660

agtccccagg ctccccagca ggcagaagta tgcaaagcat gcatctcaat tagtcagcaa 3720

ccaaattaaa gtaacccata acttcgtata gcatacatta tacgaagtta tgaagttcct 3780

attctctaga aagtatagga acttctagtc acctatttca gcatactacg cgcgtagtat 3840

gctgaaatag gtttatcagc acacaatagt ccattatacg cgcgtataat ggcaattgtg 3900

tgctgattgg gttactttaa tttggatccg tcgaccgatg cccttgagag ccttcaaccc 3960

agtcagctcc ttccggtggg cgcggggcat gactatcgtc gccgcactta tgactgtctt 4020

ctttatcatg caactcgtag gacaggtgcc ggcagcgctc ttccgcttcc tcgctcactg 4080

actcgctgcg ctcggtcgtt cggctgcggc gagcggtatc agctcactca aaggcggtaa 4140

tacggttatc cacagaatca ggggataacg caggaaagaa catgtgagca aaaggccagc 4200

aaaaggccag gaaccgtaaa aaggccgcgt tgctggcgtt tttccatagg ctccgccccc 4260

ctgacgagca tcacaaaaat cgacgctcaa gtcagaggtg gcgaaacccg acaggactat 4320

aaagatacca ggcgtttccc cctggaagct ccctcgtgcg ctctcctgtt ccgaccctgc 4380

cgcttaccgg atacctgtcc gcctttctcc cttcgggaag cgtggcgctt tctcatagct 4440

cacgctgtag gtatctcagt tcggtgtagg tcgttcgctc caagctgggc tgtgtgcacg 4500

aacccccccgt tcagcccgac cgctgcgcct tatccggtaa ctatcgtctt gagtccaacc 4560

cggtaagaca cgacttatcg ccactggcag cagccactgg taacaggatt agcagagcga 4620

ggtatgtagg cggtgctaca gagttcttga agtggtggcc taactacggc tacactagaa 4680

gaacagtatt tggtatctgc gctctgctga agccagttac cttcggaaaa agagttggta 4740

gctcttgatc cggcaaacaa accaccgctg gtagcggtgg ttttttgtt tgcaagcagc 4800

agattacgcg cagaaaaaaa ggatctcaag aagatccttt gatcttttct acggggtctg 4860

acgctcagtg gaacgaaaac tcacgttaag ggattttggt catgagatta tcaaaaagga 4920

tcttcaccta gatcctttta aattaaaaat gaagttttaa atcaatctaa agtatatatg 4980

agtaaacttg gtctgacagt taccaatgct taatcagtga ggcacctatc tcagcgatct 5040

gtctatttcg ttcatccata gttgcctgac tccccgtcgt gtagataact acgatacggg 5100

agggcttacc atctggcccc agtgctgcaa tgataccgcg agacccacgc tcaccggctc 5160

cagatttatc agcaataaac cagccagccg gaagggccga gcgcagaagt ggtcctgcaa 5220

ctttatccgc ctccatccag tctattaatt gttgccggga agctagagta agtagttcgc 5280

cagttaatag tttgcgcaac gttgttgcca ttgctacagg catcgtggtg tcacgctcgt 5340

cgtttggtat ggcttcattc agctccggtt cccaacgatc aaggcgagtt acatgatccc 5400

ccatgttgtg caaaaaagcg gttagctcct tcggtcctcc gatcgttgtc agaagtaagt 5460

tggccgcagt gttatcactc atggttatgg cagcactgca taattctctt actgtcatgc 5520

catccgtaag atgcttttct gtgactggtg agtactcaac caagtcattc tgagaatagt 5580

gtatgcggcg accgagttgc tcttgcccgg cgtcaatacg ggataatacc gcgccacata 5640

gcagaacttt aaaagtgctc atcattggaa aacgttcttc ggggcgaaaa ctctcaagga 5700

tcttaccgct gttgagatcc agttcgatgt aacccactcg tgcacccaac tgatcttcag 5760

catcttttac tttcaccagc gtttctgggt gagcaaaaac aggaaggcaa aatgccgcaa 5820

aaaagggaat aagggcgaca cggaaatgtt gaatactcat actcttcctt tttcaatatt 5880

attgaagcat ttatcagggt tattgtctca tgagcggata catatttgaa tgtatttaga 5940

aaaataaaca aatagggttt ccgcgcacat ttccccgaaa agtgccacct gacgcgccct 6000

gtagcggcgc attaagcgcg gcgggtgtgg tggttacgcg cagcgtgacc gctacacttg 6060

ccagcgccct agcgcccgct cctttcgctt tcttcccttc ctttctcgcc acgttcgccg 6120

gctttccccg tcaagctcta aatcgggggc tccctttagg gttccgattt agtgctttac 6180

ggcacctcga ccccaaaaaa cttgattagg gtgatggttc acgtagtggg ccatcgccct 6240

gatagacggt ttttcgccct ttgacgttgg agtccacgtt ctttaatagt ggactcttgt 6300

tccaaactgg aacaacactc aaccctatct cggtctattc ttttgattta taagggattt 6360

tgccgatttc ggcctattgg ttaaaaaatg agctgattta acaaaaattt aacgcgaatt 6420

ttaacaaaat attaacgctt acaatttgcc attcgccatt caggctgcgc aactgttggg 6480

aagggcgatc ggtgcgggcc tcttcgctat tacgccagcc caagctacca tgataagtaa 6540

gtaatattaa ggtacgtgga ggttttactt gctttaaaaa acctcccaca cctccccctg 6600

aacctgaaac ataaaatgaa tgcaattgtt gttgttaact tgtttattgc agcttataat 6660

ggttacaaat aaagcaatag catcacaaat ttcacaaata aagcattttt ttcactgcat 6720

tctagttgtg gtttgtccaa actcatcaat gtatcttatg gtactgtaac tgagctaaca 6780

taa 6783

<210> 45
<211> 6832
<212> DNA
<213> Artificial Sequence

<220>
<223> 4-6-pGL2-SS*-CMV enhancer-EF1-UTR1-SecNLuc-2A-eGFP-WPRE-3'UTR(108 to 120 polyA)-SS*

<400> 45
cccgggaggt accgagctct tacgcgtgct agaattaaag taacccaatc agcacacaat 60

tgccattata cgcgcgtata atggactatt gtgtgctgat aaacctattt cagcatacta 120

cgcgcgtagt atgctgaaat aggtgactag aagttcctat actttctaga gaataggaac 180

ttcataactt cgtataatgt atgctatacg aagttatggg ttactttaat ttggttgctg 240

actaattgag atgcatgctt tgcatacttc tgcctgctgg ggagcctggg gactttccac 300

acctggttgc tgactaattg agatgcatgc tttgcatact tctgcctgct ggggagcctg 360

gggactttcc acacccctgg gtcgacgaca ttgattattg actagttatt aatagtaatc 420

aattacgggg tcattagttc atagcccata tatggagttc cgcgttacat aacttacggt 480

aaatggcccg cctggctgac cgcccaacga cccccgccca ttgacgtcaa taatgacgta 540

tgttcccata gtaacgccaa tagggacttt ccattgacgt caatgggtgg agtatttacg 600

gtaaactgcc cacttggcag tacatcaagt gtatcatatg ccaagtacgc cccctattga 660

cgtcaatgac ggtaaatggc ccgcctggca ttatgcccag tacatgacct tatgggactt 720

tcctacttgg cagtacatct acgtattagt catcgctatt accatggggc agagcgcaca 780

tcgcccacag tccccgagaa gttgggggga ggggtcggca attgaaccgg tgcctagaga 840

aggtggcgcg gggtaaactg ggaaagtgat gtcgtgtact ggctccgcct ttttcccgag 900

ggtgggggag aaccgtatat aagtgcagta gtcgccgtga acgttctttt tcgcaacggg 960

tttgccgcca gaacacagct gccttctccc tcctgtgagt ttggtaagtc gacgggccgg 1020

gcctgggccg ggtccgggcc gggtcgttgg atccccacta cagcccgata ctcaagcttg 1080

acgaattcga gtatccaagg tagtggacta gtgtgacgct gctgacccct ttctttccct 1140

tctgcaggtt ggtgtacagt agcttccaaa ttgattaatt cgagcgaacg cgtcgccacc 1200

atgaactcct tctccacaag cgccttcggt ccagttgcct tctccctggg cctgctcctg 1260

gtgttgcctg ctgccttccc tgccccagtc ttcacactcg aagatttcgt tggggactgg 1320

cgacagacag ccggctacaa cctggaccaa gtccttgaac agggaggtgt gtccagtttg 1380

tttcagaatc tcggggtgtc cgtaactccg atccaaagga ttgtcctgag cggtgaaaat 1440

gggctgaaga tcgacatcca tgtcatcatc ccgtatgaag gtctgagcgg cgaccaaatg 1500

ggccagatcg aaaaaatttt taaggtggtg taccctgtgg atgatcatca ctttaaggtg 1560

atcctgcact atggcacact ggtaatcgac ggggttacgc cgaacatgat cgactatttc 1620

ggacggccgt atgaaggcat cgccgtgttc gacggcaaaa agatcactgt aacagggacc 1680

ctgtggaacg gcaacaaaat tatcgacgag cgcctgatca accccgacgg ctccctgctg 1740

ttccgagtaa ccatcaacgg agtgaccggc tggcggctgt gcgaacgcat tctggcggct 1800

agcgctacta acttcagcct gctgaagcag gctggagacg tggaggagaa ccctggacct 1860

ggaagcggag agggcagagg aagtctgcta acatgcggtg acgtcgagga gaatcctgga 1920

cctggatccg gaatggtgag caagggcgag gagctgttca ccggggtggt gcccatcctg 1980

gtcgagctgg acggcgacgt aaacggccac aagttcagcg tgtccggcga gggcgagggc 2040

gatgccacct acggcaagct gaccctgaag ttcatctgca ccaccggcaa gctgcccgtg 2100

ccctggccca ccctcgtgac caccctgacc tacggcgtgc agtgcttcag ccgctacccc 2160

gaccacatga agcagcacga cttcttcaag tccgccatgc ccgaaggcta cgtccaggag 2220

cgcaccatct tcttcaagga cgacggcaac tacaagaccc gcgccgaggt gaagttcgag 2280

ggcgacaccc tggtgaaccg catcgagctg aagggcatcg acttcaagga ggacggcaac 2340

atcctggggc acaagctgga gtacaactac aacagccaca acgtctatat catggccgac 2400

aagcagaaga acggcatcaa ggtgaacttc aagatccgcc acaacatcga ggacggcagc 2460

gtgcagctcg ccgaccacta ccagcagaac acccccatcg gcgacggccc cgtgctgctg 2520

cccgacaacc actacctgag cacccagtcc gccctgagca aagaccccaa cgagaagcgc 2580

gatcacatgg tcctgctgga gttcgtgacc gccgccggga tcactctcgg catggacgag 2640

ctgtacaagt aaaatcaacc tctggattac aaaatttgtg aaagattgac tggtattctt 2700

aactatgttg ctccttttac gctatgtgga tacgctgctt taatgccttt gtatcatgct 2760

attgcttccc gtatggcttt cattttctcc tccttgtata aatcctggtt gctgtctctt 2820

tatgaggagt tgtggcccgt tgtcaggcaa cgtggcgtgg tgtgcactgt gtttgctgac 2880

gcaaccccca ctggttgggg cattgccacc acctgtcagc tcctttccgg gactttcgct 2940

ttccccctcc ctattgccac ggcggaactc atcgccgcct gccttgcccg ctgctggaca 3000

ggggctcggc tgttgggcac tgacaattcc gtggtgttgt cggggaaatc atcgtccttt 3060

ccttggctgc tcgcctgtgt tgccacctgg attctgcgcg ggacgtcctt ctgctacgtc 3120

ccttcggccc tcaatccagc ggaccttcct tcccgcggcc tgctgccggc tctgcggcct 3180

cttccgcgtc ttcgccttcg ccctcagacg agtcggatct ccctttgggc cgcctccccg 3240

cgctcgcttt cttgctgtcc aatttctatt aaaggttcct ttgttcccta agtccaacta 3300

ctaaactggg ggatattatg aagggccttg agcatctgga ttctgcctaa taaaaaacat 3360

ttattttcat tgcaagctcg ctttcttgct gtccaatttc tattaaaggt tcctttgttc 3420

cctaagtcca actactaaac tgggggatat tatgaagggc cttgagcatc tggattctgc 3480

ctaataaaaa acatttattt tcattgcaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3540

aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 3600

aaaaaaaaaa aaaaactcgg aaggacatgg tgtggaaagt ccccaggctc cccagcaggc 3660

agaagtatgc aaagcatgca tctcaattag tcagcaacca ggtgtggaaa gtccccaggc 3720

tccccagcag gcagaagtat gcaaagcatg catctcaatt agtcagcaac caaattaaag 3780

taacccataa cttcgtatag catacattat acgaagttat gaagttccta ttctctagaa 3840

agtataggaa cttctagtca cctatttcag catactacgc gcgtagtatg ctgaaatagg 3900

tttatcagca cacaatagtc cattatacgc gcgtataatg gcaattgtgt gctgattggg 3960

ttactttaat ttggatccgt cgaccgatgc ccttgagagc cttcaaccca gtcagctcct 4020

tccggtgggc gcggggcatg actatcgtcg ccgcacttat gactgtcttc tttatcatgc 4080

aactcgtagg acaggtgccg gcagcgctct tccgcttcct cgctcactga ctcgctgcgc 4140

tcggtcgttc ggctgcggcg agcggtatca gctcactcaa aggcggtaat acggttatcc 4200

acagaatcag gggataacgc aggaaagaac atgtgagcaa aaggccagca aaaggccagg 4260

aaccgtaaaa aggccgcgtt gctggcgttt ttccataggc tccgcccccc tgacgagcat 4320

cacaaaaatc gacgctcaag tcagaggtgg cgaaacccga caggactata aagataccag 4380

gcgtttcccc ctggaagctc cctcgtgcgc tctcctgttc cgaccctgcc gcttaccgga 4440

tacctgtccg cctttctccc ttcgggaagc gtggcgcttt ctcatagctc acgctgtagg 4500

tatctcagtt cggtgtaggt cgttcgctcc aagctgggct gtgtgcacga acccccccgtt 4560

cagcccgacc gctgcgcctt atccggtaac tatcgtcttg agtccaaccc ggtaagacac 4620

gacttatcgc cactggcagc agccactggt aacaggatta gcagagcgag gtatgtaggc 4680

ggtgctacag agttcttgaa gtggtggcct aactacggct acactagaag aacagtattt 4740

ggtatctgcg ctctgctgaa gccagttacc ttcggaaaaa gagttggtag ctcttgatcc 4800

ggcaaacaaa ccaccgctgg tagcggtggt ttttttgttt gcaagcagca gattacgcgc 4860

agaaaaaaag gatctcaaga agatcctttg atcttttcta cggggtctga cgctcagtgg 4920

aacgaaaact cacgttaagg gattttggtc atgagattat caaaaaggat cttcacctag 4980

atccttttaa attaaaaatg aagttttaaa tcaatctaaa gtatatatga gtaaacttgg 5040

tctgacagtt accaatgctt aatcagtgag gcacctatct cagcgatctg tctatttcgt 5100

tcatccatag ttgcctgact ccccgtcgtg tagataacta cgatacggga gggcttacca 5160

tctggcccca gtgctgcaat gataccgcga gacccacgct caccggctcc agatttatca 5220

gcaataaacc agccagccgg aagggccgag cgcagaagtg gtcctgcaac tttatccgcc 5280

tccatccagt ctattaattg ttgccgggaa gctagagtaa gtagttcgcc agttaatagt 5340

ttgcgcaacg ttgttgccat tgctacaggc atcgtggtgt cacgctcgtc gtttggtatg 5400

gcttcattca gctccggttc ccaacgatca aggcgagtta catgatcccc catgttgtgc 5460

aaaaaagcgg ttagctcctt cggtcctccg atcgttgtca gaagtaagtt ggccgcagtg 5520

ttatcactca tggttatggc agcactgcat aattctctta ctgtcatgcc atccgtaaga 5580

tgcttttctg tgactggtga gtactcaacc aagtcattct gagaatagtg tatgcggcga 5640

ccgagttgct cttgcccggc gtcaatacgg gataataccg cgccacatag cagaacttta 5700

aaagtgctca tcattggaaa acgttcttcg gggcgaaaac tctcaaggat cttaccgctg 5760

ttgagatcca gttcgatgta acccactcgt gcacccaact gatcttcagc atcttttact 5820

ttcaccagcg tttctgggtg agcaaaaaca ggaaggcaaa atgccgcaaa aaagggaata 5880

agggcgacac ggaaatgttg aatactcata ctcttccttt ttcaatatta ttgaagcatt 5940

tatcagggtt attgtctcat gagcggatac atatttgaat gtatttagaa aaataaacaa 6000

atagggggttc cgcgcacatt tccccgaaaa gtgccacctg acgcgccctg tagcggcgca 6060

ttaagcgcgg cgggtgtggt ggttacgcgc agcgtgaccg ctacacttgc cagcgcccta 6120

gcgcccgctc ctttcgcttt cttcccttcc tttctcgcca cgttcgccgg ctttccccgt 6180

caagctctaa atcgggggct ccctttaggg ttccgattta gtgctttacg gcacctcgac 6240

cccaaaaaac ttgattaggg tgatggttca cgtagtgggc catcgccctg atagacggtt 6300

tttcgccctt tgacgttgga gtccacgttc tttaatagtg gactcttgtt ccaaactgga 6360

acaacactca accctatctc ggtctattct tttgatttat aagggatttt gccgatttcg 6420

gcctattggt taaaaaatga gctgatttaa caaaaattta acgcgaattt taacaaaata 6480

ttaacgctta caatttgcca ttcgccattc aggctgcgca actgttggga agggcgatcg 6540

gtgcgggcct cttcgctatt acgccagccc aagctaccat gataagtaag taatattaag 6600

gtacgtggag gttttacttg ctttaaaaaa cctcccacac ctccccctga acctgaaaca 6660

taaaatgaat gcaattgttg ttgttaactt gtttattgca gcttataatg gttacaaata 6720

aagcaatagc atcacaaatt tcacaaataa agcatttttt tcactgcatt ctagttgtgg 6780

tttgtccaaa ctcatcaatg tatcttatgg tactgtaact gagctaacat aa 6832

<210> 46
<211> 333
<212> DNA
<213> Artificial Sequence

<220>
<223> 3 copies of Enhancer-1

<400> 46
gggactttcc ggggcggggc acgtggtgca cgggactttc cgtgcacgtg cacgggactt 60

tccgggactt tccgggactt tccgtgcacc acgtggggac tttccgtgca cgggactttc 120

cggggcgggg cacgtggtgc acgggacttt ccgtgcacgt gcacgggact ttccgggact 180

ttccgggact ttccgtgcac cacgtgggga ctttccgtgc acgggacttt ccggggcggg 240

gcacgtggtg cacgggactt tccgtgcacg tgcacgggac tttccgggac tttccgggac 300

tttccgtgca ccacgtgggg actttccgtg cac 333

<210> 47
<211> 1016
<212> DNA
<213> Artificial Sequence

<220>
<223> chimeric intron

<400> 47
ggagtcgctg cgttgccttc gccccgtgcc ccgctccgcg ccgcctcgcg ccgcccgccc 60

cggctctgac tgaccgcgtt actcccacag gtgagcgggc gggacggccc ttctcctccg 120

ggctgtaatt agcgcttggt ttaatgacgg ctcgtttctt ttctgtggct gcgtgaaagc 180

cttaaagggc tccgggaggg ccctttgtgc ggggggggagc ggctcggggg gtgcgtgcgt 240

gtgtgtgtgc gtggggagcg ccgcgtgcgg ctccgcgctg cccggcggct gtgagcgctg 300

cgggcgcggc gcggggcttt gtgcgctccg cagtgtgcgc gaggggagcg cggccggggg 360

cggtgccccg cggtgcgggg ggggctgcga ggggaacaaa ggctgcgtgc ggggtgtgtg 420

cgtgggggggg tgagcagggg gtgtgggcgc ggcggtcggg ctgtaacccc cccctgcacc 480

cccctccccg agttgctgag cacggcccgg cttcgggtgc ggggctccgt acggggcgtg 540

gcgcggggct cgccgtgccg ggcgggggggt ggcggcaggt gggggtgccg ggcggggcgg 600

ggccgcctcg ggccggggag ggctcggggg aggggcgcgg cggcccccgg agcgccggcg 660

gctgtcgagg cgcggcgagc cgcagccatt gccttttatg gtaatcgtgc gagagggcgc 720

agggacttcc tttgtcccaa atctgtgcgg agccgaaatc tgggaggcgc cgccgcaccc 780

cctctagcgg gcgcggggcg aagcggtgcg gcgccggcag gaaggaaatg ggcggggagg 840

gccttcgtgc gtcgccgcgc cgccgtcccc ttctccctct ccagcctcgg ggctgtccgc 900

ggggggacgg ctgccttcgg gggggacggg gcagggcggg gttcggcttc tggcgtgtga 960

ccggcggctc tagagcctct gctaaccatg ttcatgcctt cttcttttc ctacag 1016