eolf-seql
SEQUENCE LISTING

<110> F. Hoffmann-La Roche AG

<120> Expression vector element combinations, novel production cell generation methods and their use for the recombinant production of polypeptides

<130> 30789 WO

<150> EP11195361
<151> 2011-12-22

<160> 17

<170> PatentIn version 3.5

<210> 1
<211> 608
<212> DNA
<213> Human cytomegalovirus

<400> 1
gttgacattg attattgact agttattaat agtaatcaat tacggggtca ttagttcata 60

gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgcct ggctgaccgc 120

ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag 180

ggactttcca ttgacgtcaa tgggtggagt atttacggta aactgcccac ttggcagtac 240

atcaagtgta tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg 300

cctggcatta tgcccagtac atgaccttat gggactttcc tacttggcag tacatctacg 360

tattagtcat cgctattagc atggtgatgc ggttttggca gtacatcaat gggcgtggat 420

agcggtttga ctcacgggga tttccaagtc tccaccccat tgacgtcaat gggagtttgt 480

tttggcacca aaatcaacgg gactttccaa aatgtcgtaa caactccgcc ccattgacgc 540

aaatgggcgg taggcgtgta cggtgggagg tctatataag cagagctccg tttagtgaac 600

gtcagatc 608

<210> 2
<211> 696
<212> DNA
<213> Human cytomegalovirus

<400> 2
gttgacattg attattgact agttattaat agtaatcaat tacggggtca ttagttcata 60

gcccatatat ggagttccgc gttacataac ttacggtaaa tggcccgcct ggctgaccgc 120

ccaacgaccc ccgcccattg acgtcaataa tgacgtatgt tcccatagta acgccaatag 180

ggactttcca ttgacgtcaa tgggtggagt atttacggta aactgcccac ttggcagtac 240

atcaagtgta tcatatgcca agtacgcccc ctattgacgt caatgacggt aaatggcccg 300

cctggcatta tgcccagtac atgaccttat gggactttcc tacttggcag tacatctacg 360

tattagtcat cgctattagc atggtgatgc ggttttggca gtacatcaat gggcgtggat 420

agcggtttga ctcacgggga tttccaagtc tccaccccat tgacgtcaat gggagtttgt 480

eolf-seql

tttggcacca aaatcaacgg gactttccaa aatgtcgtaa caactccgcc ccattgacgc 540

aaatgggcgg taggcgtgta cggtgggagg tctatataag cagagctccg tttagtgaac 600

gtcagatcta gctctgggag aggagcccag cactagaagt cggcggtgtt tccattcggt 660

gatcagcact gaacacagag gaagcttgcc gccacc 696

<210> 3
<211> 2125
<212> DNA
<213> Human cytomegalovirus

<400> 3
ctgcagtgaa taataaaatg tgtgtttgtc cgaaatacgc gttttgagat ttctgtcgcc 60

gactaaattc atgtcgcgcg atagtggtgt ttatcgccga tagagatggc gatattggaa 120

aaatcgatat ttgaaaatat ggcatattga aaatgtcgcc gatgtgagtt tctgtgtaac 180

tgatatcgcc atttttccaa aagtgatttt tgggcatacg cgatatctgg cgatagcgct 240

tatatcgttt acgggggatg gcgatagacg actttggtga cttgggcgat tctgtgtgtc 300

gcaaatatcg cagtttcgat ataggtgaca gacgatatga ggctatatcg ccgatagagg 360

cgacatcaag ctggcacatg gccaatgcat atcgatctat acattgaatc aatattggcc 420

attagccata ttattcattg gttatatagc ataaatcaat attggctatt ggccattgca 480

tacgttgtat ccatatcata atatgtacat ttatattggc tcatgtccaa cattaccgcc 540

atgttgacat tgattattga ctagttatta atagtaatca attacggggt cattagttca 600

tagcccatat atggagttcc gcgttacata acttacggta aatggcccgc ctggctgacc 660

gcccaacgac ccccgcccat tgacgtcaat aatgacgtat gttcccatag taacgccaat 720

agggactttc cattgacgtc aatgggtgga gtatttacgg taaactgccc acttggcagt 780

acatcaagtg tatcatatgc caagtacgcc ccctattgac gtcaatgacg gtaaatggcc 840

cgcctggcat tatgcccagt acatgacctt atgggacttt cctacttggc agtacatcta 900

cgtattagtc atcgctatta ccatggtgat gcggttttgg cagtacatca atgggcgtgg 960

atagcggttt gactcacggg gatttccaag tctccacccc attgacgtca atgggagttt 1020

gttttggcac caaaatcaac gggactttcc aaaatgtcgt aacaactccg ccccattgac 1080

gcaaatgggc ggtaggcgtg tacggtggga ggtctatata agcagagctc gtttagtgaa 1140

ccgtcagatc gcctggagac gccatccacg ctgttttgac ctccatagaa gacaccggga 1200

ccgatccagc ctccgcggcc gggaacggtg cattggaacg cggattcccc gtgccaagag 1260

tgacgtaagt accgcctata gagtctatag gcccaccccc ttggcttctt atgcatgcta 1320

tactgttttt ggcttggggt ctatacaccc ccgcttcctc atgttatagg tgatggtata 1380

gcttagccta taggtgtggg ttattgacca ttattgacca ctcccctatt ggtgacgata 1440

ctttccatta ctaatccata acatggctct ttgccacaac tctctttatt ggctatatgc 1500

caatacactg tccttcagag actgacacgg actctgtatt tttacaggat ggggtctcat 1560

ttattattta caaattcaca tatacaacac caccgtcccc agtgcccgca gtttttatta 1620

eolf-seql

aacataacgt gggatctcca cgcgaatctc gggtacgtgt tccggacatg ggctcttctc 1680

cggtagcggc ggagcttcta catccgagcc ctgctcccat gcctccagcg actcatggtc 1740

gctcggcagc tccttgctcc taacagtgga ggccagactt aggcacagca cgatgcccac 1800

caccaccagt gtgccgcaca aggccgtggc ggtagggtat gtgtctgaaa atgagctcgg 1860

ggagcgggct tgcaccgctg acgcatttgg aagacttaag gcagcggcag aagaagatgc 1920

aggcagctga gttgttgtgt tctgataaga gtcagaggta actcccgttg cggtgctgtt 1980

aacggtggag ggcagtgtag tctgagcagt actcgttgct gccgcgcgcg ccaccagaca 2040

taatagctga cagactaaca gactgttcct ttccatgggt cttttctgca gtcaccgtcc 2100

ttgacacggt ttaaacgccg ccacc 2125

<210> 4
<211> 575
<212> DNA
<213> Homo sapiens

<400> 4
cccgggctgg gctgagaccc gcagaggaag acgctctagg gatttgtccc ggactagcga 60

gatggcaagg ctgaggacgg gaggctgatt gagaggcgaa ggtacaccct aatctcaata 120

caaccttttgg agctaagcca gcaatggtag agggaagatt ctgcacgtcc cttccaggcg 180

gcctccccgt caccaccccc cccaacccgc cccgaccgga gctgagagta attcatacaa 240

aaggactcgc ccctgccttg gggaatccca gggaccgtcg ttaaactccc actaacgtag 300

aacccagaga tcgctgcgtt cccgcccccct cacccgcccg ctctcgtcat cactgaggtg 360

gagaagagca tgcgtgaggc tccggtgccc gtcagtgggc agagcgcaca tcgcccacag 420

tccccgagaa gttgggggga ggggtcggca attgaaccgg tgcctagaga aggtggcgcg 480

gggtaaactg ggaaagtgat gtcgtgtact ggctccgcct ttttcccgag ggtgggggag 540

aaccgtatat aagtgcagta gtcgccgtga acgtt 575

<210> 5
<211> 1571
<212> DNA
<213> Homo sapiens

<400> 5
cccgggctgg gctgagaccc gcagaggaag acgctctagg gatttgtccc ggactagcga 60

gatggcaagg ctgaggacgg gaggctgatt gagaggcgaa ggtacaccct aatctcaata 120

caaccttttgg agctaagcca gcaatggtag agggaagatt ctgcacgtcc cttccaggcg 180

gcctccccgt caccaccccc cccaacccgc cccgaccgga gctgagagta attcatacaa 240

aaggactcgc ccctgccttg gggaatccca gggaccgtcg ttaaactccc actaacgtag 300

aacccagaga tcgctgcgtt cccgcccccct cacccgcccg ctctcgtcat cactgaggtg 360

gagaagagca tgcgtgaggc tccggtgccc gtcagtgggc agagcgcaca tcgcccacag 420

tccccgagaa gttgggggga ggggtcggca attgaaccgg tgcctagaga aggtggcgcg 480

eolf-seql

gggtaaactg ggaaagtgat gtcgtgtact ggctccgcct ttttcccgag ggtgggggag 540

aaccgtatat aagtgcagta gtcgccgtga acgttctttt tcgcaacggg tttgccgcca 600

gaacacaggt aagtgccgtg tgtggttccc gcgggcctgg cctctttacg ggttatggcc 660

cttgcgtgcc ttgaattact tccacgcccc tggctgcagt acgtgattct tgatcccgag 720

cttcgggttg gaagtgggtg ggagagttcg aggccttgcg cttaaggagc cccttcgcct 780

cgtgcttgag ttgaggcctg gcctgggcgc tggggccgcc gcgtgcgaat ctggtggcac 840

cttcgcgcct gtctcgctgc tttcgataag tctctagcca tttaaaattt ttgatgacct 900

gctgcgacgc tttttttctg gcaagatagt cttgtaaatg cgggccaaga tctgcacact 960

ggtatttcgg tttttggggc cgcgggcggc gacggggccc gtgcgtccca gcgcacatgt 1020

tcggcgaggc ggggcctgcg agcgcggcca ccgagaatcg gacgggggta gtctcaagct 1080

ggccggcctg ctctggtgcc tggcctcgcg ccgccgtgta tcgccccgcc ctgggcggca 1140

aggctggccc ggtcggcacc agttgcgtga gcggaaagat ggccgcttcc cggccctgct 1200

gcagggagct caaaatggag gacgcggcgc tcgggagagc gggcgggtga gtcacccaca 1260

caaaggaaaa gggcctttcc gtcctcagcc gtcgcttcat gtgactccac ggagtaccgg 1320

gcgccgtcca ggcacctcga ttagttctcg atcttttgga gtacgtcgtc tttaggttgg 1380

ggggaggggt tttatgcgat ggagtttccc cacactgagt gggtggagac tgaagttagg 1440

ccagcttggc acttgatgta attctccttg gaatttgccc tttttgagtt tggatcttgg 1500

ttcattctca agcctcagac agtggttcaa agtttttttc ttccatttca ggtggtttaa 1560

acgccgccac c 1571

<210> 6
<211> 1653
<212> DNA
<213> Artificial Sequence

<220>
<223> human elongation factor 1 alpha promoter with Intron A and with optimized 5'UTR

<400> 6
cccgggctgg gctgagaccc gcagaggaag acgctctagg gatttgtccc ggactagcga 60

gatggcaagg ctgaggacgg gaggctgatt gagaggcgaa ggtacaccct aatctcaata 120

caacctttgg agctaagcca gcaatggtag agggaagatt ctgcacgtcc cttccaggcg 180

gcctccccgt caccaccccc cccaacccgc cccgaccgga gctgagagta attcatacaa 240

aaggactcgc ccctgccttg gggaatccca gggaccgtcg ttaaactccc actaacgtag 300

aacccagaga tcgctgcgtt cccgcccccc cacccgcccg ctctcgtcat cactgaggtg 360

gagaagagca tgcgtgaggc tccggtgccc gtcagtgggc agagcgcaca tcgcccacag 420

tccccgagaa gttgggggga ggggtcggca attgaaccgg tgcctagaga aggtggcgcg 480

gggtaaactg ggaaagtgat gtcgtgtact ggctccgcct ttttcccgag ggtgggggag 540

eolf-seql

aaccgtatat aagtgcagta gtcgccgtga acgttctttt tcgcaacggg tttgccgcca 600

gaacacaggt aagtgccgtg tgtggttccc gcgggcctgg cctctttacg ggttatggcc 660

cttgcgtgcc ttgaattact tccacgcccc tggctgcagt acgtgattct tgatcccgag 720

cttcgggttg gaagtgggtg ggagagttcg aggccttgcg cttaaggagc cccttcgcct 780

cgtgcttgag ttgaggcctg gcctgggcgc tggggccgcc gcgtgcgaat ctggtggcac 840

cttcgcgcct gtctcgctgc tttcgataag tctctagcca tttaaaattt ttgatgacct 900

gctgcgacgc ttttttttctg gcaagatagt cttgtaaatg cgggccaaga tctgcacact 960

ggtatttcgg tttttggggc cgcgggcggc gacggggccc gtgcgtccca gcgcacatgt 1020

tcggcgaggc ggggcctgcg agcgcggcca ccgagaatcg gacgggggta gtctcaagct 1080

ggccggcctg ctctggtgcc tggcctcgcg ccgccgtgta tcgccccgcc ctgggcggca 1140

aggctggccc ggtcggcacc agttgcgtga gcggaaagat ggccgcttcc cggccctgct 1200

gcagggagct caaaatggag gacgcggcgc tcgggagagc gggcgggtga gtcacccaca 1260

caaaggaaaa gggcctttcc gtcctcagcc gtcgcttcat gtgactccac ggagtaccgg 1320

gcgccgtcca ggcacctcga ttagttctcg atcttttgga gtacgtcgtc tttaggttgg 1380

ggggaggggt tttatgcgat ggagtttccc cacactgagt gggtggagac tgaagttagg 1440

ccagcttggc acttgatgta attctccttg gaatttgccc tttttgagtt tggatcttgg 1500

ttcattctca agcctcagac agtggttcaa agtttttttc ttccatttca ggtgtcgtga 1560

ggaattagct ctgggagagg agcccagcac tagaagtcgg cggtgtttcc attcggtgat 1620

cagcactgaa cacagaggaa gcttgccgcc acc 1653

<210> 7
<211> 2473
<212> DNA
<213> Rattus norvegicus

<400> 7
gatattttta tggaaatttt aaaaaattct ggtaagctat ttaaaaaaat gaactttatt 60

atgaaactat tgccctttc tctaaaaaac aacacaattt cacggaatat cctatgatta 120

attatgacct tttagccagt tcccatatta agaatgagtt atagatgact ctctttaaaa 180

aattattcga tttaaaccat ctgttttaaa gcacagcatt tgtgaataat gtgaagaact 240

tagaagtata atctactcca aggtctgatg tatttttcaa ggccacgtta aagtgtatgc 300

ttgtaacaga gtgcttacat tcaagccaaa tgttaatata acaatcctga attcgtacat 360

aatgtgaata agacactcaa ctctatttaa atccagatct aaatagttac ttttatctaa 420

atgtcaccat ctgtttctac ttagaataat aaacttctta aaggtcacgt atcgggctga 480

ttataaatca ttataattat aacaaaacag atgatttgtt taaaggtcac atcccgttcc 540

gtggtctttt tagtcgaaat aactattaat cttcattatg tttctgagaa agtttaaata 600

tcacgatttc cacccataac agtcattatg agtcagtggg agtcatactg aatcagggta 660

ttttaactgg aaatttttg aaaaacatga gtttttctta aggtcaacat ctggtcttat 720

eolf-seql

aaacagaact gagatttatg gccggtaatt accactggac gatttcccgg gaaatcgcta 780
tgggaacggc ccgttttgca acttctttga ccaaaatata tcgagttaag caacttttaa 840
ggccaagtca ctatgactat gccaaataaa gcaactatta aggtcatttc actatggaaa 900
cacccaattc agcaacattg taagccaaat ctccatagaa acctcataag tcagccaaaa 960
gtcaacgacc taccatctgt ttctgcttat ttctctaatt ttaattgcag actttgtcat 1020
tttatgttcc tcttattctg agaatacgtg acgcccgctc gttaaggaca ccgaaactgc 1080
ataagagtca cgttgactca gatgacctcg acatctggtc tggtttttct gccaattttt 1140
cgtctaaact gtggaaaatc cccacagatg acctacaaaa ctccgatttc tattggacga 1200
tgaccgtcag acgtaggtat aaatctccta acgccgttcg ggcagtcaca gtcttcggat 1260
cggacgccgt ggaacgcagt tctcagcgaa gaaggacacc gcccgactcc agaagacacc 1320
gctgcccgaa gaagagaaga cttcatcggt aagagaccca gcttctcctc cccggagctt 1380
cggccacgcc gctccacacc cgggaaccga ggcttcggag cccgataccc ggacagaagc 1440
ttctccccgg ccgctccaca tcagggagcc ttgaccggcg agcctgctat ccgggtagag 1500
actgtcctgc ggccgcttca gcagctccac gatcgacgac tgtgaccgtt gagcccgccg 1560
tttaggcaga ggctccgctt caactaccct accgacacat tcgcggttct tcctccagaa 1620
catcttaccc tctactcggc cactctacaa ggaccggtaa gcaattttta tatactagac 1680
ttaaatgttt ctatgatcat tatgtggtga tggttctgtg tatgaagaga gctaggtgga 1740
ggctatcttt cgcttcggtg atggaacact actcttacaa tggcggctct aatgacggtt 1800
ttctcaacat cggtggcggc tctaattacg gttctctcaa catcggtggt ggtcttcgca 1860
tgcgagctct agatttttt tatctgtaaa ataagattga agatggttga ctgtgtatca 1920
attctttttc ataggcatca gatcttgtca accgttatta atctttagga tcagatgaac 1980
ttgcgagctc gatatctaga atagaatccc cgtgactgct aagatcatct ccgttcatac 2040
accagatgtt acaggccacg gctaccatta tgaatccaaa catgaacaga attgccagaa 2100
tggtgctcaa tggttgtatc catctcgctg gtctattttc tctcaccgac gagaccccaa 2160
catcgagagt tccgtttatt tcatgagtcg acctttttagt tcgtgattta ttttctgtgt 2220
taagaaaatc agtgagatca attattgtca gtctatacga ttacaataat gtctgaatta 2280
tcgacgtgca taagatcgtc tcacccggcg cagattccaa cagatctttg tcgccatgcc 2340
ttccgttaga aaggtagtat agtaatatga taccagcaat gcacagaatc gaacatttga 2400
taacaatttt gttgatgtcg tatatctgtt aaaaattaat aaatatatta cagtcagttt 2460
aaacgccgcc acc 2473

<210> 8
<211> 129
<212> DNA
<213> Simian virus 40

<400> 8

eolf-seql

aacttgttta ttgcagctta taatggttac aaataaagca atagcatcac aaatttcaca 60

aataaagcat ttttttcacc attctagttg tggtttgtcc aaactcatca atgtatctta 120

tcatgtctg 129

<210> 9
<211> 225
<212> DNA
<213> Bos taurus

<400> 9
ctgtgccttc tagttgccag ccatctgttg tttgcccctc ccccgtgcct tccttgaccc 60

tggaaggtgc cactcccact gtcctttcct aataaaatga ggaaattgca tcgcattgtc 120

tgagtaggtg tcattctatt ctgggggggtg gggtggggca ggacagcaag ggggaggatt 180

gggaagacaa tagcaggcat gctggggatg cggtgggctc tatgg 225

<210> 10
<211> 73
<212> DNA
<213> Homo sapiens

<400> 10
caggataata tatggtaggg ttcatagcca gagtaacctt ttttttaat ttttatttta 60

ttttatttt gag 73

<210> 11
<211> 288
<212> DNA
<213> Simian virus 40

<400> 11
agtcagcaac caggtgtgga aagtccccag gctccccagc aggcagaagt atgcaaagca 60

tgcatctcaa ttagtcagca accatagtcc cgcccctaac tccgcccatc ccgcccctaa 120

ctccgcccag ttccgcccat tctccgcccc atggctgact aatttttttt atttatgcag 180

aggccgaggc cgcctctgcc tctgagctat tccagaagta gtgaggaggc ttttttggag 240

gcctaggctt ttgcaaaaag ctcccgggag cttgtatatc cattttcg 288

<210> 12
<211> 81
<212> DNA
<213> Homo sapiens

<400> 12
catggcttcc cgccggaggt ggaggagcag gatgatggca cgctgcccat gtcttgtgcc 60

caggagagcg ggatggaccg t 81

<210> 13
<211> 798
<212> DNA
<213> Artificial Sequence

<220>
<223> green fluorescent protein encoding nucleic acid

eolf-seql

<400> 13
atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac 60

ggcgacgtaa acggccacaa gttcagcgtg tccggcgagg gcgagggcga tgccacctac 120

ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc 180

ctcgtgacca ccctgaccta cggcgtgcag tgcttcagcc gctaccccga ccacatgaag 240

cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc 300

ttcaaggacg acggcaacta caagacccgc gccgaggtga agttcgaggg cgacaccctg 360

gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac 420

aagctggagt acaactacaa cagccacaac gtctatatca tggccgacaa gcagaagaac 480

ggcatcaagg tgaacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540

gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac 600

tacctgagca cccagtccgc cctgagcaaa gaccccaacg agaagcgcga tcacatggtc 660

ctgctggagt tcgtgaccgc cgccgggatc actctcggca tggacgagct gtacaagtcc 720

ggactcagat ctcgagctca agcttcgaat tctgcagtcg acggtaccgc gggcccggga 780

tccaccggat ctagatga 798

<210> 14
<211> 795
<212> DNA
<213> Artificial Sequence

<220>
<223> neomycin selection marker

<400> 14
atgattgaac aagatggatt gcacgcaggt tctccggccg cttgggtgga gaggctattc 60

ggctatgact gggcacaaca gacaatcggc tgctctgatg ccgccgtgtt ccggctgtca 120

gcgcaggggc gcccggttct ttttgtcaag accgacctgt ccggtgccct gaatgaactg 180

caggacgagg cagcgcggct atcgtggctg gccacgacgg gcgttccttg cgcagctgtg 240

ctcgacgttg tcactgaagc gggaagggac tggctgctat tgggcgaagt gccggggcag 300

gatctcctgt catctcacct tgctcctgcc gagaaagtat ccatcatggc tgatgcaatg 360

cggcggctgc atacgcttga tccggctacc tgcccattcg accaccaagc gaaacatcgc 420

atcgagcgag cacgtactcg gatggaagcc ggtcttgtcg atcaggatga tctggacgaa 480

gagcatcagg ggctcgcgcc agccgaactg ttcgccaggc tcaaggcgcg catgcccgac 540

ggcgaggatc tcgtcgtgac ccatggcgat gcctgcttgc cgaatatcat ggtggaaaat 600

ggccgctttt ctggattcat cgactgtggc cggctgggtg tggcggaccg ctatcaggac 660

atagcgttgg ctacccgtga tattgctgaa gagcttggcg gcgaatgggc tgaccgcttc 720

ctcgtgcttt acggtatcgc cgctcccgat tcgcagcgca tcgccttcta tcgccttctt 780

gacgagttct tctga 795

eolf-seql

<210> 15
<211> 1677
<212> DNA
<213> Artificial Sequence

<220>
<223> GFP-PEST-NEO fusion polypeptide encoding nucleic acid

<400> 15
atggtgagca agggcgagga gctgttcacc ggggtggtgc ccatcctggt cgagctggac 60

ggcgacgtaa acggccacaa gttcagcgtg tccggcgagg gcgagggcga tgccacctac 120

ggcaagctga ccctgaagtt catctgcacc accggcaagc tgcccgtgcc ctggcccacc 180

ctcgtgacca ccctgaccta cggcgtgcag tgcttcagcc gctaccccga ccacatgaag 240

cagcacgact tcttcaagtc cgccatgccc gaaggctacg tccaggagcg caccatcttc 300

ttcaaggacg acggcaacta caagacccgc gccgaggtga agttcgaggg cgacaccctg 360

gtgaaccgca tcgagctgaa gggcatcgac ttcaaggagg acggcaacat cctggggcac 420

aagctggagt acaactacaa cagccacaac gtctatatca tggccgacaa gcagaagaac 480

ggcatcaagg tgaacttcaa gatccgccac aacatcgagg acggcagcgt gcagctcgcc 540

gaccactacc agcagaacac ccccatcggc gacggccccg tgctgctgcc cgacaaccac 600

tacctgagca cccagtccgc cctgagcaaa gaccccaacg agaagcgcga tcacatggtc 660

ctgctggagt tcgtgaccgc cgccgggatc actctcggca tggacgagct gtacaagtcc 720

ggactcagat ctcgagctca agcttcgaat tctgcagtcg acggtaccgc gggcccggga 780

tccaccggat ctagacatgg cttcccgccg gaggtggagg agcaggatga tggcacgctg 840

cccatgtctt gtgcccagga gagcgggatg gaccgtagtt taaacattga acaagatgga 900

ttgcacgcag gttctccggc cgcttgggtg gagaggctat tcggctatga ctgggcacaa 960

cagacaatcg gctgctctga tgccgccgtg ttccggctgt cagcgcaggg gcgcccggtt 1020

ctttttgtca agaccgacct gtccggtgcc ctgaatgaac tgcaggacga ggcagcgcgg 1080

ctatcgtggc tggccacgac gggcgttcct tgcgcagctg tgctcgacgt tgtcactgaa 1140

gcgggaaggg actggctgct attgggcgaa gtgccggggc aggatctcct gtcatctcac 1200

cttgctcctg ccgagaaagt atccatcatg gctgatgcaa tgcggcggct gcatacgctt 1260

gatccggcta cctgcccatt cgaccaccaa gcgaaacatc gcatcgagcg agcacgtact 1320

cggatggaag ccggtcttgt cgatcaggat gatctggacg aagagcatca ggggctcgcg 1380

ccagccgaac tgttcgccag gctcaaggcg cgcatgcccg acggcgagga tctcgtcgtg 1440

acccatggcg atgcctgctt gccgaatatc atggtggaaa atggccgctt ttctggattc 1500

atcgactgtg gccggctggg tgtggcggac cgctatcagg acatagcgtt ggctacccgt 1560

gatattgctg aagagcttgg cggcgaatgg gctgaccgct tcctcgtgct ttacggtatc 1620

gccgctcccg attcgcagcg catcgccttc tatcgccttc ttgacgagtt cttctga 1677

<210> 16

eolf-seql

<211> 583
<212> DNA
<213> Encephalomyocarditis virus

<400> 16
ggcgcgcccc cctctccctc ccccccccct aacgttactg gccgaagccg cttggaataa 60

ggccggtgtg cgtttgtcta tatgtgattt tccaccatat tgccgtcttt tggcaatgtg 120

agggcccgga aacctggccc tgtcttcttg acgagcattc ctaggggtct ttcccctctc 180

gccaaaggaa tgcaaggtct gttgaatgtc gtgaaggaag cagttcctct ggaagcttct 240

tgaagacaaa caacgtctgt agcgaccctt tgcaggcagc ggaacccccc acctggcgac 300

aggtgcctct gcggccaaaa gccacgtgta taagatacac ctgcaaaggc ggcacaaccc 360

cagtgccacg ttgtgagttg gatagttgtg gaaagagtca aatggctctc ctcaagcgta 420

ttcaacaagg ggctgaagga tgcccagaag gtaccccatt gtatgggatc tgatctgggg 480

cctcggtgca catgctttac atgtgtttag tcgaggttaa aaaaacgtct aggcccccccg 540

aaccacgggg acgtggtttt cctttgaaaa acacgatgga tcc 583

<210> 17
<211> 655
<212> DNA
<213> Enterovirus 71

<400> 17
ggcgcgcccc cgaagtaact tagaagctgt aaatcaacga tcaatagcag gtgtggcaca 60

ccagtcatac cttgatcaag cacttctgtt tccccggact gagtatcaat aggctgctcg 120

cgcggctgaa ggagaaaacg ttcgttaccc gaccaactac ttcgagaagc ttagtaccac 180

catgaacgag gcagggtgtt tcgctcagca caaccccagt gtagatcagg ctgatgagtc 240

actgcaaccc ccatgggcga ccatggcagt ggctgcgttg gcggcctgcc catggagaaa 300

tccatgggac gctctaattc tgacatggtg tgaagagcct attgagctag ctggtagtcc 360

tccggcccct gaatgcggct aatcctaact gcggagcaca tgctcacaaa ccagtgggtg 420

gtgtgtcgta acgggcaact ctgcagcgga accgactact ttgggtgtcc gtgtttcctt 480

ttattcctat attggctgct tatggtgaca atcaaaaagt tgttaccata tagctattgg 540

attggccatc cggtgtgcaa cagggcaatt gtttacctat ttattggttt tgtaccatta 600

tcactgaagt ctgtgatcac tctcaaattc attttgaccc tcaacacaat caaac 655