SEQUENCE LISTING

<110> Memphis Meats, Inc.

<120> Engineer cell lines for cultivation of animal biomass for dietary consumption

<130> 45974.0002

<160> 43

<170> PatentIn version 3.5

<210> 1
<211> 23
<212> DNA
<213> Gallus gallus

<400> 1
tcacccgcag cagatcgccg cgg 23

<210> 2
<211> 23
<212> DNA
<213> Gallus gallus

<400> 2
cgggtgaagg agctactgga cgg 23

<210> 3
<211> 23
<212> DNA
<213> Gallus gallus

<400> 3
gcaccacgcc tgctgctccg ggg 23

<210> 4
<211> 23
<212> DNA
<213> Gallus gallus

<400> 4
gctgggctcc cctcgcgggt cgg 23

<210> 5
<211> 23
<212> DNA
<213> Gallus gallus

<400> 5

cctcgtgtct gtgggcagcg ggg 23

<210> 6
<211> 5816
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(573)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (576)..(1546)
<223> Intron Chicken beta actin

<400> 6
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggcgcg 420

cgccaggcgg ggcggggcgg ggcgaggggc ggggcggggc gaggcggaga ggtgcggcgg 480

cagccaatca gagcggcgcg ctccgaaagt ttccttttat ggcgaggcgg cggcggcggc 540

ggccctataa aaagcgaagc gcgcggcggg cgggagtcgc tgcgcgctgc cttcgccccg 600

tgccccgctc cgccgccgcc tcgcgccgcc cgccccggct ctgactgacc gcgttactcc 660

cacaggtgag cgggcgggac ggcccttctc ctccgggctg taattagcgc ttggtttaat 720

gacggcttgt ttcttttctg tggctgcgtg aaagccttga ggggctccgg gagggccctt 780

tgtgcggggg gagcggctcg gggggtgcgt gcgtgtgtgt gtgcgtgggg agcgccgcgt 840

gcggctccgc gctgcccggc ggctgtgagc gctgcgggcg cggcgcgggg ctttgtgcgc 900

tccgcagtgt gcgcgagggg agcgcggccg ggggcggtgc cccgcggtgc gggggggct 960

gcgaggggaa caaaggctgc gtgcggggtg tgtgcgtggg ggggtgagca gggggtgtgg 1020

gcgcgtcggt cgggctgcaa ccccccctgc acccccctcc ccgagttgct gagcacggcc 1080

cggcttcggg tgcggggctc cgtacggggc gtggcgcggg gctcgccgtg ccgggcgggg 1140

ggtggcggca ggtgggggtg ccgggcgggg cggggccgcc tcgggccggg gagggctcgg 1200

gggaggggcg cggcggcccc cggagcgccg gcggctgtcg aggcgcggcg agccgcagcc 1260

attgcctttt atggtaatcg tgcgagaggg cgcagggact tcctttgtcc caaatctgtg 1320

cggagccgaa atctgggagg cgccgccgca ccccctctag cgggcgcggg gcgaagcggt 1380

gcggcgccgg caggaaggaa atgggcgggg agggccttcg tgcgtcgccg cgccgccgtc 1440

cccttctccc tctccagcct cggggctgtc cgcgggggga cggctgcctt cgggggggac 1500

ggggcagggc ggggttcggc ttctggcgtg tgaccggcgg ctctagagcc tctgctaacc 1560

atgttcatgc cttcttcttt ttcctacagc tcctgggcaa cgtgctggtt attgtgctgt 1620

ctcatcattt tggcaaagaa ttcggcttga tcgaagccgt ctcaggggag agaccgcagg 1680

agcccgggct gggcataaaa gtcagggcag agccatctat tgcttacatt tgcttctgac 1740

acaactgtgt tcactagcaa cctcaaacag acaccatgga gcgcggggct cagccgggag 1800

tcggtgtgcg gcggctccgc aatgtagcgc gggaggagcc cttcgccgcg gtcctgggcg 1860

cgctgcgggg ctgctacgcc gaggccacgc cgctggaggc cttcgtccgg cggctgcagg 1920

agggtggcac cggggaggtc gaggtgctgc gaggcgacga cgctcagtgc taccggacct 1980

tcgtgtcgca gtgcgtggtg tgcgtccccc gcggtgctcg cgccatcccc cggcccatct 2040

gcttccagca gttatccagt cagagcgaag tcatcacaag aatcgttcag aggctgtgtg 2100

aaaagaaaaa gaagaacatc cttgcgtatg gatactcctt gctggatgag aacagttgtc 2160

acttcagagt tttgccatct tcgtgtatat acagctatct gtccaatact gtaacagaaa 2220

cgattcgcat cagtggcctc tgggagatac tgctgagtag gataggggac gacgtgatga 2280

tgtacctgct ggagcactgt gcactcttca tgctggttcc cccaagtaac tgttaccagg 2340

tctgcgggca accaatttat gaacttattt cgcgtaacgt agggccatcc ccagggtttg 2400

ttagacgacg gtactcaagg tttaaacata atagcttgct tgactatgtg cgaaaaaggc 2460

ttgtgtttca caggcactat ctttccaagt cgcagtggtg gaagtgcagg ccgagacgtc 2520

gaggtcgtgt ctccagcagg agaaaaagaa ggagccatag gatacaaagc ctaaggtctg 2580

gttatcagcc ttctgcaaaa gtgaactttc aagcaggtag gcagatcagc acagttactg 2640

cacgtctgga aaaacagagc tgctccagtt tatgtttgcc agctagagca ccatctttaa 2700

aaaggaagcg tgatggagaa caggttgaaa tcacagctaa gagagtgaaa ataatggaga 2760

aagagataga ggaacaggct tgtagtatcg ttcctgatgt aaaccaaagt agctcccaga 2820

ggcatggaac ctcctggcat gtagcaccac gtgctgtagg tcttattaaa gaacattaca 2880

tttctgaaag aagtaacagt gagatgtctg gtccttctgt agttcacaga tctcaccctg 2940

ggaagaggcc tgtggcagac aaaagctctt ttccacaagg agttcagggt aacaaacgca 3000

taaagaccgg tgcagaaaaa cgagcagaat ccaatagaag gggcatagag atgtatataa 3060

acccaatcca taaacccaat agaaggggca tagagaggcg tataaatcca acccacaaac 3120

ctgagttgaa ttctgtacaa actgaaccaa tggaaggtgc ttcttcaggg gacagaaagc 3180

aggaaaatcc cccagctcat ttggcaaagc agttaccaaa tacattgtcg cgctctacag 3240

tgtactttga gaagaaattt cttctgtatt cccgcagtta ccaagaatat tttcctaaat 3300

cgttcatact gagccgcctg cagggttgtc aggcaggtgg aaggcggctt atagaaacta 3360

tattcttaag ccaaaaccca ttaaaggaac agcagaacca aagcctacca cagcaaaagt 3420

ggcgaaagaa gaggttgccc aaacgctact ggcaaatgag agagatattt cagaagctgg 3480

taaagaacca tgagaagtgc ccttatttag ttttcttgag gaaaaattgc cctgttttgc 3540

tttctgaagc atgtttgaaa aagacggagc tgaccttgca ggcggctctg cctggggaag 3600

caaaggttca caagcacaca gaacatggga aagagtccac tgagggtact gcaccgaaca 3660

gcttcctcgc tcctccctca gtgctagcat gtgggcagcc agagagaggg gaacagcacc 3720

ctgcagaggg gagtgatccg ctcctcaggg agctgctcag gcagcacagc agccactggc 3780

aggtgtatgg ctttgtgagg gagtgcctgg agcgggtgat ccctgctgag ctgtggggtt 3840

caagccataa caaatgccgg ttctttaaaa acgtgaaagc attcatttcc atggggaagt 3900

atgctaagct ttcattgcag cagctgatgt ggaagatgag agtgaatgac tgcgtatggc 3960

ttcgtctggc caaaggtaat cactctgttc ctgcctatga acattgttac cgtgaagaaa 4020

ttctggcaaa attcctatac tggctgatgg attcctatgt tatcgagttg ctcaaatcat 4080

ttttctatat caccgagacc atgttccaga aaaacatgct tttctactac cgaaagttta 4140

tctggggcaa gttacagaac attggaatta gagaccattt tgccaaagta catctacgtg 4200

ccttgtcttc agaggagatg gaagtgatcc gtcaaaaaaa gtattttcct attgcatcaa 4260

ggctccggtt cattcctaaa atgaatggtt taagacccgt agtaagacta agccgtgttg 4320

ttgaaggaca gaaactcagc aaggaaagca gagaaaagaa gatacagcgc tataacactc 4380

agctaaaaaa tctatttagt gttttaaact atgaacgaac tgtaaacacc agtatcattg 4440

gctcttcagt attcgggaga gatgatatct acaggaagtg gaaggagttt gttacaaagg 4500

tttttgaatc aggtggtgaa atgcctcatt tctactttgt aaagggtgat gtatccagag 4560

cttttgatac cattcctcac aagaaacttg tggaagtgat atcacaggtc ttgaaacctg 4620

agagccaaac tgtctatgga ataaggtggt atgcagtgat tatgattacc ccaactggaa 4680

aagccaggaa actctataag agacatgttt ctactttcga ggattttatt ccagacatga 4740

agcagtttgt gtccaagctt caagagagaa cttcattacg aaatgcaata gtagttgaac 4800

agtgcttaac ttttaatgag aacagttcca ccctgtttac tttctttctt caaatgttac 4860

ataataacat cctggagatt gggcacaggt actatataca gtgctctgga atcccacagg 4920

gctccatttt gtcaacctta ctttgcagct tatgctacgg agacatggaa aacaaattac 4980

tctgtgggat ccagaaggat ggagtcctaa tacgtcttat tgatgacttt ttgctggtta 5040

cgccacattt aatgcaggca agaacttttc taaggactat agcagcaggt attcctgagt 5100

atggcttttt aataaatgcc aagaagactg tggtgaattt tcctgttgat gatatcccgg 5160

gatgttccaa gttcaaacat ctgccagatt gtcgtttgat ctcatggtgt ggtttattat 5220

tggatgtgca gacacttgag gtttattgtg attactccag ttatgccttt acttctatca 5280

gatcaagtct ttccttcaat tcaagtagaa tagctgggaa aaacatgaaa tgcaaattga 5340

ctgcagtcct caaactgaaa tgccatcctt tacttcttga cttaaagatc aacagccttc 5400

agacagttct aattaacatc tacaagatat ttttacttca ggcttacagg ttccatgcct 5460

gtgttcttca gcttccattc aaccagaaag ttaggaataa tcctgatttc ttcctaagga 5520

tcatctctga tactgcttca tgctgctatt ttatcctgaa agctaaaaat ccaggagttt 5580

ctttaggtag caaagatgca tctggcatgt tccctttga ggcagcagaa tggctgtgct 5640

accatgcctt cattgtcaaa ctgtccaacc acaaagttat ttacaaatgc ttacttaagc 5700

cccttaaagt ctataagatg catctgtttg ggaagatccc aagggatact atggaactgc 5760

tgaagacggt gacggaacca tcgctttgtc aagatttcaa aactatactg gactaa 5816

<210> 7
<211> 5854
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<400> 7
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggtgtgag caggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccc gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttcctttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcggctt gatcgaagcc gtctcagggg agagaccgca 1680

ggagcccggg ctgggcataa aagtcagggc agagccatct attgcttaca tttgcttctg 1740

acacaactgt gttcactagc aacctcaaac agacaccatg gagcgcgggg ctcagccggg 1800

agtcggtgtg cggcggctcc gcaatgtagc gcgggaggag cccttcgccg cggtcctggg 1860

cgcgctgcgg ggctgctacg ccgaggccac gccgctggag gccttcgtcc ggcggctgca 1920

ggagggtggc accggggagg tcgaggtgct gcgaggcgac gacgctcagt gctaccggac 1980

cttcgtgtcg cagtgcgtgg tgtgcgtccc ccgcggtgct cgcgccatcc cccggcccat 2040

ctgcttccag cagttatcca gtcagagcga agtcatcaca agaatcgttc agaggctgtg 2100

tgaaaagaaa aagaagaaca tccttgcgta tggatactcc ttgctggatg agaacagttg 2160

tcacttcaga gttttgccat cttcgtgtat atacagctat ctgtccaata ctgtaacaga 2220

aacgattcgc atcagtggcc tctgggagat actgctgagt aggatagggg acgacgtgat 2280

gatgtacctg ctggagcact gtgcactctt catgctggtt cccccaagta actgttacca 2340

ggtctgcggg caaccaattt atgaacttat ttcgcgtaac gtagggccat ccccagggtt 2400

tgttagacga cggtactcaa ggtttaaaca taatagcttg cttgactatg tgcgaaaaag 2460

gcttgtgttt cacaggcact atctttccaa gtcgcagtgg tggaagtgca ggccgagacg 2520

tcgaggtcgt gtctccagca ggagaaaaag aaggagccat aggatacaaa gcctaaggtc 2580

tggttatcag ccttctgcaa aagtgaactt tcaagcaggt aggcagatca gcacagttac 2640

tgcacgtctg gaaaaacaga gctgctccag tttatgtttg ccagctagag caccatcttt 2700

aaaaaggaag cgtgatggag aacaggttga aatcacagct aagagagtga aaataatgga 2760

gaaagagata gaggaacagg cttgtagtat cgttcctgat gtaaaccaaa gtagctccca 2820

gaggcatgga acctcctggc atgtagcacc acgtgctgta ggtcttatta aagaacatta 2880

catttctgaa agaagtaaca gtgagatgtc tggtccttct gtagttcaca gatctcaccc 2940

tgggaagagg cctgtggcag acaaaagctc ttttccacaa ggagttcagg gtaacaaacg 3000

cataaagacc ggtgcagaaa aacgagcaga atccaataga aggggcatag agatgtatat 3060

aaacccaatc cataaaccca atagaagggg catagagagg cgtataaatc caacccacaa 3120

acctgagttg aattctgtac aaactgaacc aatggaaggt gcttcttcag gggacagaaa 3180

gcaggaaaat cccccagctc atttggcaaa gcagttacca aatacattgt cgcgctctac 3240

agtgtacttt gagaagaaat ttcttctgta ttcccgcagt taccaagaat attttcctaa 3300

atcgttcata ctgagccgcc tgcagggttg tcaggcaggt ggaaggcggc ttatagaaac 3360

tatattctta agccaaaacc cattaaagga acagcagaac caaagcctac cacagcaaaa 3420

gtggcgaaag aagaggttgc ccaaacgcta ctggcaaatg agagagatat ttcagaagct 3480

ggtaaagaac catgagaagt gcccttattt agttttcttg aggaaaaatt gccctgtttt 3540

gctttctgaa gcatgtttga aaaagacgga gctgaccttg caggcggctc tgcctgggga 3600

agcaaaggtt cacaagcaca cagaacatgg gaaagagtcc actgagggta ctgcaccgaa 3660

cagcttcctc gctcctccct cagtgctagc atgtgggcag ccagagagag gggaacagca 3720

ccctgcagag gggagtgatc cgctcctcag ggagctgctc aggcagcaca gcagccactg 3780

gcaggtgtat ggctttgtga gggagtgcct ggagcgggtg atccctgctg agctgtgggg 3840

ttcaagccat aacaaatgcc ggttctttaa aaacgtgaaa gcattcattt ccatggggaa 3900

gtatgctaag ctttcattgc agcagctgat gtggaagatg agagtgaatg actgcgtatg 3960

gcttcgtctg gccaaaggta atcactctgt tcctgcctat gaacattgtt accgtgaaga 4020

aattctggca aaattcctat actggctgat ggattcctat gttatcgagt tgctcaaatc 4080

atttttctat atcaccgaga ccatgttcca gaaaaacatg cttttctact accgaaagtt 4140

tatctggggc aagttacaga acattggaat tagagaccat tttgccaaag tacatctacg 4200

tgccttgtct tcagaggaga tggaagtgat ccgtcaaaaa aagtattttc ctattgcatc 4260

aaggctccgg ttcattccta aaatgaatgg tttaagaccc gtagtaagac taagccgtgt 4320

tgttgaagga cagaaactca gcaaggaaag cagagaaaag aagatacagc gctataacac 4380

tcagctaaaa aatctattta gtgttttaaa ctatgaacga actgtaaaca ccagtatcat 4440

tggctcttca gtattcggga gagatgatat ctacaggaag tggaaggagt ttgttacaaa 4500

ggtttttgaa tcaggtggtg aaatgcctca tttctacttt gtaaagggtg atgtatccag 4560

agcttttgat accattcctc acaagaaact tgtggaagtg atatcacagg tcttgaaacc 4620

tgagagccaa actgtctatg gaataaggtg gtatgcagtg attatgatta ccccaactgg 4680

aaaagccagg aaactctata agagacatgt ttctactttc gaggatttta ttccagacat 4740

gaagcagttt gtgtccaagc ttcaagagag aacttcatta cgaaatgcaa tagtagttga 4800

acagagattt ttactaaact gttacagtct aattcttcag tgcttaactt ttaatgagaa 4860

cagttccacc ctgtttactt tctttcttca aatgttacat aataacatcc tggagattgg 4920

gcacaggtac tatatacagt gctctggaat cccacagggc tccattttgt caaccttact 4980

ttgcagctta tgctacggag acatggaaaa caaattactc tgtgggatcc agaaggatgg 5040

agtcctaata cgtcttattg atgacttttt gctggttacg ccacatttaa tgcaggcaag 5100

aacttttcta aggactatag cagcaggtat tcctgagtat ggctttttaa taaatgccaa 5160

gaagactgtg gtgaatttc ctgttgatga tatcccggga tgttccaagt tcaaacatct 5220

gccagattgt cgtttgatct catggtgtgg tttattattg gatgtgcaga cacttgaggt 5280

ttattgtgat tactccagtt atgcctttac ttctatcaga tcaagtcttt ccttcaattc 5340

aagtagaata gctgggaaaa acatgaaatg caaattgact gcagtcctca aactgaaatg 5400

ccatccttta cttcttgact taaagatcaa cagccttcag acagttctaa ttaacatcta 5460

caagatattt ttacttcagg cttacaggtt ccatgcctgt gttcttcagc ttccattcaa 5520

ccagaaagtt aggaataatc ctgatttctt cctaaggatc atctctgata ctgcttcatg 5580

ctgctatttt atcctgaaag ctaaaaatcc aggagtttct ttaggtagca aagatgcatc 5640

tggcatgttc ccttttgagg cagcagaatg gctgtgctac catgccttca ttgtcaaact 5700

gtccaaccac aaagttattt acaaatgctt acttaagccc cttaaagtct ataagatgca 5760

tctgtttggg aagatcccaa gggatactat ggaactgctg aagacggtga cggaaccatc 5820

gctttgtcaa gatttcaaaa ctatactgga ctaa 5854

<210> 8
<211> 23
<212> DNA
<213> Bos taurus

<400> 8
ggcggccaac aagtcggccg agg 23

<210> 9
<211> 23
<212> DNA
<213> Bos taurus

<400> 9
gccaacgcgc cgaaccgtta cgg 23

<210> 10
<211> 23
<212> DNA
<213> Bos taurus

<400> 10
cctcgggtgc aaagactccg cgg 23

<210> 11
<211> 4993
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<300>
<308> NCBI RefSeq / NM_001046242.1
<309> 2016-04-02
<313> (1646)..(4993)

<400> 11
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggggtgag caggggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttcctttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tcccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatgcc gcgcgcgccc aggtgccggg ccgtgcgcgc 1680

ccttctgcgg gccagctacc ggcaggtgct gcccctggcc gccttcgtac ggcgcctgcg 1740

gccccagggc caccggcttg tgcggcgcgg ggacccggcg gccttccgcg cgctggtggc 1800

tcagtgcttg gtgtgcgtgc cctgggacgc gcagccgccc cctgccgccc cgtccttccg 1860

ccaggtgtcc tgcctgaagg agctggtggc cagagtcgtg cagaggctct gcgagcgcgg 1920

cgcgaggaac gtgctggcct tcggcttcac gctgctggcc ggggcccgcg gcgggccgcc 1980

cgtggccttc acgaccagcg tacgcagcta cctgcccaac acggtaaccg acacgctgcg 2040

cggcagcggc gcctgggggc tgctgctgca ccgcgtgggc gacgacgtgc tcacccacct 2100

gctgtcgcgc tgcgcgctct acctgctggt gcccccgacc tgcgcctacc aggtgtgtgg 2160

gccgccgctc tatgacctcc gcgccgccgc cgccgccgct cgtcggccca cgcggcaagt 2220

gggcgggacc cgggcgggct tcggactccc gcgcccggcc tcgtcgaacg gcggccacgg 2280

ggaggccgaa ggactcctgg aggcgcgggc ccagggcgcg aggcggcgtc gcagtagcgc 2340

gcggggacga ctgcctccag ccaagaggcc caggcgcggc ctggagcccg ggcgggatct 2400

cgaagggcag gtggcccgca gcccgccccg cgtggtgaca cctacccgag acgctgcgga 2460

agccaagtct cggaagggcg acgtgcccgg gccctgccgc ctcttcccgg gcggcgagcg 2520

gggtgtcggc tccgcgtcct ggcggctgtc accctcggag ggcgagccgg gtgccggagc 2580

ttgcgctgag accaagaggt tcctttactg ctccggcggt ggcgaacagc tgcgccgctc 2640

cttcctgctc tgctccctgc ctcccagcct ggccggggcg cggacactcg tggaaaccat 2700

ctttctggac tcgaagcccg ggccgccagg ggctccccgc cggccgcgcc gcctgcccgc 2760

gcgctactgg cagatgcggc ccctgttccg gaaactgctt gggaaccacg cgcggtgccc 2820

ctatggcgcg ctgctcaggg cgcactgccc gctgccggcc tctgcgcccc gggcggggcc 2880

agaccatcag aagtgccctg gtgttggggg ctgcccctct gagaggccgg ccgctgcccc 2940

cgagggcgag gcgaactcag ggcgcctggt ccagctgctc cgccagcaca gcagcccctg 3000

gcaggtgtac ggcctcctgc gggcctgtct tcgccgcctg gtgcccgccg gcctctgggg 3060

ctcccggcac aacgagcggc gcttcctgcg gaacgtgaag aagctcctct ccctggggaa 3120

gcacggcagg ctctcgcagc aggagctcac gtggaagatg aaggtgcagg actgcgcctg 3180

gctgcgcgcg agcccagggg ctcgctgcgt gcccgccgcg gagcaccgcc agcgcgaggc 3240

cgtcctgggt cgcttcctgc actggctgat gggcgcctac gtggtggagc tgctcaggag 3300

cttcttctac gtcacagaga ccacgttcca gaagaaccgg ctcttcttct tccggaagcg 3360

catctggagc cagctgcagc gcctgggcgt cagacaacac ttagaccgtg tgcggcttcg 3420

agaactgtca gaagcagagg tcaggcagca ccaggaggcc aggccggctc tgctgacatc 3480

caggctccgt ttcgtcccca agcccggcgg gctgcggccc atcgtgaacg tgggctgtgt 3540

tgagggcgcc ccggcaccgc ccagagacaa gaaggtgcag catctcagct cacgggtcaa 3600

gacgctgttc gcggtgctga actacgagcg agctcggcgg cctggcctcc tgggggcctc 3660

ggtgctgggc atggacgaca tccacagggc ctggcgggcc ttcgtgctgc ccctgagggc 3720

ccggggccca gccccccccgc tctacttcgt caaggtggac gtggtggggg cctacgatgc 3780

cctcccccag gataagctgg cagaggtgat cgctaacgtg ctgcagccgc aggagaatac 3840

gtactgcgtg cgccactgcg ccatggtccg gactgcgcgc gggcgcatgc gcaagtcctt 3900

caagagacac gtgtccacct tctcggactt ccagccgtac ctgaggcagc tcgtggagca 3960

tctgcaggcg atgggctccc tgagggacgc cgtggtcatc gagcagagct gctccctgaa 4020

cgagcctggc agcagcctct tcaacctctt cctgcacctg aggtcctaca tccagtgtca 4080

ggggatcccc cagggctcca tcctgtccac cctgctctgc agcttctgct atggggacat 4140

ggagaacaag ctcttccctg gagtccagca ggacggggtg cttctgcgcc tggtggacga 4200

cttcctgctg gtcaccccgc acctgacgcg ggccagagac ttcctcagga cgctggtgcg 4260

cggtgtgcct gagtatggct gccaggtgaa cctgcggaag acggtggtga acttccccgt 4320

ggagcccggg gccctgggcg gcgcggcgcc cctgcagctg ccggcccact gcctgttccc 4380

ctggtgcggc ctgctgctgg atacccgcac cctggaggtg catggcgacc actccagtta 4440

cgcccggacg tccatcagag cgagtctcac cttcacccag ggcttcaagc ccgggaggaa 4500

catgcgtcgc aagctgttgg cggtcttgca gctcaagtgc catgggctct tcctggacct 4560

gcaggtgaac agtctgcaga cggtcttcac aaacgtttac aagatattcc tgctgcaggc 4620

ctacaggttc cacgcctgcg tgctgcagct gcccttcagc cagccggtca ggagcagccc 4680

cgcgttcttt ctccaggtca tcgccgacac cgcatcccgc ggctacgccc tcctgaaagc 4740

caggaacgca ggggcgtcac tgggggccag gggcgccgcc ggcctgttcc cgtctgaagc 4800

tgcgcagtgg ctgtgtctcc acgccttcct gctcaagctg gctcaccacc gtgtcaccta 4860

cagccgcctg ctgggggccc tccggacagc ccaagcacgg ctgcaccggc agctcccggg 4920

gcccacacgg gccgccctgg aggcggcggc cgaccccgcc ctgaccgcag acttcaagac 4980

catcttggac tga 4993

<210> 12
<211> 2557
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<400> 12
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggggtgag caggggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttccctttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatggc tacctcccga tatgagccag tggctgagat 1680

tggtgtcggt gcctatggga cagtgtacaa ggcccgtgat ccccacagtg gccactttgt 1740

ggccctcaag agtgtaagag tccccaatgg aggaggtgct ggaggggggcc tgcccatcag 1800

caccgttcgg gaggtggcct tactgcggcg tctggaggct tttgagcatc ccaatgttgt 1860

caggcttatg gacgtctgtg caacagcccg aactgaccgg gagaccaaag tgaccctggt 1920

gtttgagcat gtggaccaag atctcaggac atatctggac aaggcacccc caccaggctt 1980

gccagtggag accataaaag atctgatgcg ccaatttcta agaggcctgg atttccttca 2040

tgccaactgc atcgttcacc gagacctgaa gccagagaac attctggtga caagtggtgg 2100

gacagtcaag ctggctgact ttggcctggc cagaatctac agctaccaga tggcacttac 2160

acctgtggtt gttacactct ggtatcgtgc tccagaagtt cttttgcagt ctacgtatgc 2220

aacacccgtg gacatgtgga gcgttggctg tatctttgca gagatgtttc gtcgaaagcc 2280

tctcttctgt ggaaactctg aagctgacca gttaggcaaa atctttgacc tgattggact 2340

gcccccagag gatgactggc cccgagatgt ctctctaccc cgaggagcct tttccccccg 2400

agggccccgc ccagtgcagt cggtggtccc tgagctggag gaatctggag cacagctgct 2460

gctggagatg ctgactttta acccacacaa gcgaatctct gccttccgag ccctgcagca 2520

ctcttatcta cacaaggcag aaggtgacgc agagtga 2557

<210> 13
<211> 2557
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<400> 13
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggtgtgag caggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttccttttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatggc tacctcccga tatgagccag tggctgagat 1680

tggtgtcggt gcctatggga cagtgtacaa ggcctgtgat ccccacagtg gccactttgt 1740

ggccctcaag agtgtaagag tccccaatgg aggaggtgct ggaggggggcc tgcccatcag 1800

caccgttcgg gaggtggcct tactgcggcg tctggaggct tttgagcatc ccaatgttgt 1860

caggcttatg gacgtctgtg caacagcccg aactgaccgg gagaccaaag tgaccctggt 1920

gtttgagcat gtggaccaag atctcaggac atatctggac aaggcacccc caccaggctt 1980

gccagtggag accataaaag atctgatgcg ccaatttcta agaggcctgg atttccttca 2040

tgccaactgc atcgttcacc gagacctgaa gccagagaac attctggtga caagtggtgg 2100

gacagtcaag ctggctgact ttggcctggc cagaatctac agctaccaga tggcacttac 2160

acctgtggtt gttacactct ggtatcgtgc tccagaagtt cttttgcagt ctacgtatgc 2220

aacacccgtg gacatgtgga gcgttggctg tatctttgca gagatgtttc gtcgaaagcc 2280

tctcttctgt ggaaactctg aagctgacca gttaggcaaa atctttgacc tgattggact 2340

gcccccagag gatgactggc cccgagatgt ctctctaccc cgaggagcct tttccccccg 2400

agggccccgc ccagtgcagt cggtggtccc tgagctggag gaatctggag cacagctgct 2460

gctggagatg ctgactttta acccacacaa gcgaatctct gccttccgag ccctgcagca 2520

ctcttatcta cacaaggcag aaggtgacgc agagtga 2557

<210> 14
<211> 2559
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<400> 14
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggggtgag caggggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttcctttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatggc tacctctcga tatgagccag tggctgaaat 1680

tggtgtcggt gcctatggga cagtgtacaa ggcctgtgat ccccacagtg gccactttgt 1740

ggccctcaag agtgtgagag tccccaatgg aggaggaggt ggaggaggcc ttcccatcag 1800

cacagttcgt gaggtggctt tactgaggcg actggaggct tttgagcatc ccaatgttgt 1860

ccggctgatg gacgtctgtg ccacatcccg aactgaccgg gagatcaagg taaccctggt 1920

gtttgagcat gtagaccagg acctaaggac atatctggac aaggcacccc caccaggctt 1980

gccagccgaa acgatcaagg atctgatgcg ccagtttcta agaggcctag atttccttca 2040

tgccaattgc atcgttcacc gagatctgaa gccagagaac attctggtga caagtggtgg 2100

aacagtcaag ctggctgact ttggcctggc cagaatctac agctaccaga tggcacttac 2160

acccgtggtt gttacactct ggtaccgagc tcccgaagtt cttctgcagt ccacatatgc 2220

aacacctgtg gacatgtgga gtgttggctg tatctttgca gagatgtttc gtcgaaagcc 2280

tctcttctgt ggaaactctg aagccgacca gttgggcaaa atctttgacc tgattgggct 2340

gcctccagag gatgactggc ctcgagatgt atccctgccc cgtggagcct ttccccccag 2400

agggccccgc ccagtgcagt cggtggtacc tgagatggag gagtcgggag cacagctgct 2460

gctggaaatg ctgactttta acccacacaa gcgaatctct gcctttcgag ctctgcagca 2520

ctcttatcta cataaggatg aaggtaatcc ggagtgaaa 2559

<210> 15
<211> 2542
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)
<223> Intron Chicken beta actin

<400> 15
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggggtgag caggggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttccctttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatgga gaacttccag aaggtggaga agatcgggga 1680

gggcacctat ggtgtggtgt acaaggctcg caacaagcgc acgggcgagc tggtggcgct 1740

caagaagatc cggctggaca cggagaccga gggtgtcccc agcactgcca tccgagaaat 1800

ctcgctgctg aaggagctga agcatcccaa catagtcaaa ctgctggacg tgatccacac 1860

ggagaacaag ctctacctgg tctttgagtt cctgcaccag gacctgaaga agttcatgga 1920

tgcatcatcc ctgggcggca tcgcgctgcc cctcatcaag agctacctgt tccagctgct 1980

gcaaggcctg gccttctgcc acgcacaccg cgtgctgcac cgtgacctca aaccccagaa 2040

cctcctcatc aacgccgacg gtgccatcaa gctggctgac ttcgggctgg cccgcgcctt 2100

tggggtgccc gtgcgcacct acacacacga ggtggtgacg ttgtggtacc gtgcgcctga 2160

gatcctgctg ggctgcaagt actattcgac tgctgtggac atctggagcc tgggctgcat 2220

ttttgctgag atggtgacgc ggcgcgcgct cttccccggg gattcggaga tcgatcagct 2280

cttccgtatc ttccgcacgt tggggacacc ggatgaggcc gcctggcccg gcgtcaccgc 2340

gctgcccgac tacaagccca gcttccccaa atgggcccgg caggatctgg gcaaggtggt 2400

gccgccgctg gatgaggagg gccgcaagct gctggctcaa atgctgcact acgatcccaa 2460

caagcgcatc tcggccaagg cagcgctgag ccacccccttc ttccgcgacg tcaccagggc 2520

tgtcccccac ctgcgcctgt ga 2542

<210> 16
<211> 2626
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic construct

<220>
<221> enhancer
<222> (1)..(293)
<223> human CMV IE1

<220>
<221> promoter
<222> (294)..(575)
<223> Chicken Beta Actin Promoter

<220>
<221> Intron
<222> (578)..(1548)

<400> 16
acttacggta aatggcccgc ctggctgacc gcccaacgac ccccgcccat tgacgtcaat 60

aatgacgtat gttcccatag taacgccaat agggactttc cattgacgtc aatgggtgga 120

gtatttacgg taaactgccc acttggcagt acatcaagtg tatcatatgc caagtacgcc 180

ccctattgac gtcaatgacg gtaaatggcc cgcctggcat tatgcccagt acatgacctt 240

atgggacttt cctacttggc agtacatcta cgtattagtc atcgctatta ccatggtcga 300

ggtgagcccc acgttctgct tcactctccc catctccccc ccctccccac ccccaatttt 360

gtatttattt atttttaat tattttgtgc agcgatgggg gcgggggggg gggggggcg 420

cgcgccaggc ggggcggggc ggggcgaggg gcggggcggg gcgaggcgga gaggtgcggc 480

ggcagccaat cagagcggcg cgctccgaaa gtttcctttt atggcgaggc ggcggcggcg 540

gcggccctat aaaaagcgaa gcgcgcggcg ggcgggagtc gctgcgcgct gccttcgccc 600

cgtgccccgc tccgccgccg cctcgcgccg cccgccccgg ctctgactga ccgcgttact 660

cccacaggtg agcgggcggg acggcccttc tcctccgggc tgtaattagc gcttggttta 720

atgacggctt gtttcttttc tgtggctgcg tgaaagcctt gaggggctcc gggagggccc 780

tttgtgcggg gggagcggct cgggggggtgc gtgcgtgtgt gtgtgcgtgg ggagcgccgc 840

gtgcggctcc gcgctgcccg gcggctgtga gcgctgcggg cgcggcgcgg ggctttgtgc 900

gctccgcagt gtgcgcgagg ggagcgcggc cgggggcggt gccccgcggt gcgggggggg 960

ctgcgagggg aacaaaggct gcgtgcgggg tgtgtgcgtg gggggggtgag caggggggtgt 1020

gggcgcgtcg gtcgggctgc aacccccccct gcacccccct ccccgagttg ctgagcacgg 1080

cccggcttcg ggtgcggggc tccgtacggg gcgtggcgcg gggctcgccg tgccgggcgg 1140

ggggtggcgg caggtggggg tgccgggcgg ggcggggccg cctcgggccg gggagggctc 1200

gggggagggg cgcggcggcc cccggagcgc cggcggctgt cgaggcgcgg cgagccgcag 1260

ccattgcctt ttatggtaat cgtgcgagag ggcgcaggga cttccttttgt cccaaatctg 1320

tgcggagccg aaatctggga ggcgccgccg cacccccctct agcgggcgcg gggcgaagcg 1380

gtgcggcgcc ggcaggaagg aaatgggcgg ggagggcctt cgtgcgtcgc cgcgccgccg 1440

tcccccttctc cctctccagc ctcggggctg tccgcggggg gacggctgcc ttcgggggggg 1500

acggggcagg gcggggttcg gcttctggcg tgtgaccggc ggctctagag cctctgctaa 1560

ccatgttcat gccttcttct ttttcctaca gctcctgggc aacgtgctgg ttattgtgct 1620

gtctcatcat tttggcaaag aattcatgga caaggacggc accaacctgg ccgaccagca 1680

gtatgagtgc gtggctgaga tcggcgaggg agcctacggg aaggtgttca aggcccgcga 1740

cctgaagaat ggcggccgct tcgtggcgct gaagcgggtg cgggtgcaga ccagcgagga 1800

gggcatgccg ctgtccacca tccgggaggt ggccgtcctg aggcacctgg agaccttcga 1860

gcaccccaac gtggtcagat tgtttgatgt gtgcaccgtg tcacgaacag acagagaaac 1920

caagttaacg ttggtgtttg aacatgtgga tcaagacttg actacttact tggataaagt 1980

tccagagcct ggagtgccta ctgaaactat aaaggatatg atgcttcagc tgtttcgggg 2040

actggatttt ctgcattcac atcgtgtggt gcatcgggac ctgaaacccc agaatatcct 2100

tgtaaccagc agtgggcaga taaagttagc tgactttgga cttgcacgaa tctacagttt 2160

tcagatggct cttacatcag tggttgttac tttgtggtat agagctcctg aagttttgct 2220

tcagtccagc tatgcaacac cagttgatct ttggagtgtt ggttgcatat ttgcagaaat 2280

gttccgtcga aaaccactct tccgtggaaa ttcagatgtt gatcagctag gaaaaatctt 2340

tgatgtaatt ggactcccag aagaagagga ctggcctaat gatgtggccc ttccaagaaa 2400

tgcttttgct tccagacccg cacaacctat tgaaaaattt gtaccagata ttgatgacat 2460

gggcaaagac ttgcttctta aatgcttagc gttcaatcca gccaagagaa tatctgccta 2520

tgctgccctg tctcacccct atttccatga tctggagaaa tgcaaggaga atctggactc 2580

tcacatgtca tccagccaaa actccagtga ggtgaacgca tcataa 2626

<210> 17
<211> 168
<212> PRT
<213> Mus musculus

<300>
<308> NCBI RefSeq / NP_001035744.1
<309> 2015-05-12
<313> (1)..(168)

<400> 17

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

Val His Asp Val Arg Ala Leu Leu Glu Ala Gly Val Ser Pro Asn Ala
20 25 30

Pro Asn Ser Phe Gly Arg Thr Pro Ile Gln Val Met Met Met Gly Asn
35 40 45

Val His Val Ala Ala Leu Leu Leu Asn Tyr Gly Ala Asp Ser Asn Cys
50 55 60

Glu Asp Pro Thr Thr Phe Ser Arg Pro Val His Asp Ala Ala Arg Glu
65 70 75 80

Gly Phe Leu Asp Thr Leu Val Val Leu His Gly Ser Gly Ala Arg Leu

```
                85                  90                  95

Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Leu Asp Leu Ala Gln Glu
            100                 105                 110

Arg Gly His Gln Asp Ile Val Arg Tyr Leu Arg Ser Ala Gly Cys Ser
        115                 120                 125

Leu Cys Ser Ala Gly Trp Ser Leu Cys Thr Ala Gly Asn Val Ala Gln
    130                 135                 140

Thr Asp Gly His Ser Phe Ser Ser Ser Thr Pro Arg Ala Leu Glu Leu
145                 150                 155                 160

Arg Gly Gln Ser Gln Glu Gln Ser
                165
```

<210> 18
<211> 152
<212> PRT
<213> Bos taurus

<300>
<308> NCBI RefSeq / XP_010806061.1
<309> 2016-01-26
<313> (1)..(152)

<400> 18

```
Met Glu Thr Ser Ala Asp Leu Leu Ala Ala Ala Ala Ala Leu Gly Trp
1               5                   10                  15

Ala Glu Glu Val Arg Ala Leu Leu Glu Ala Gly Ala Ser Ala Asn Ala
            20                  25                  30

Pro Asn Arg Tyr Gly Arg Ser Ala Ile Gln Val Met Met Met Gly Ser
        35                  40                  45

Ala Arg Val Ala Glu Leu Leu Leu Leu His Gly Ala Asp Pro Asn Cys
    50                  55                  60

Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala Ala Arg Glu
65                  70                  75                  80
```

```
Gly Phe Leu Asp Thr Leu Val Ala Leu His Arg Ala Gly Ala Arg Leu
                85                  90                  95


Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Val Asp Leu Ala Glu Glu
            100                 105                 110


Arg Gly His Arg Asp Val Ala Arg Tyr Leu Arg Ala Ala Ala Glu Asp
        115                 120                 125


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


Asp Ser Ser Asp Leu Lys Lys Asp
145                 150


<210>  19
<211>  152
<212>  PRT
<213>  Sus scrofa

<300>
<308>  GenBank / CAC87046.1
<309>  2005-04-15
<313>  (1)..(152)

<400>  19

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


Glu Gly Glu Val Arg Ala Leu Leu Glu Ala Gly Ala Leu Ala Asn Ala
            20                  25                  30


Pro Asn Arg Tyr Gly Arg Thr Pro Ile Gln Val Met Met Met Gly Ser
        35                  40                  45


Thr Arg Val Ala Glu Leu Leu Leu Leu His Gly Ala Asp Pro Asn Cys
    50                  55                  60


Glu Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala Ala Arg Glu
65                  70                  75                  80


Gly Phe Leu Asp Thr Leu Val Val Leu His Arg Ala Gly Ala Arg Leu
                85                  90                  95
```

```
Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Val Asp Leu Ala Glu Glu
            100                 105                 110


Arg Gly His Arg Asp Val Ala Gly Tyr Leu Arg Ala Asn Ala Gly Arg
        115                 120                 125


Thr Glu Gly Gly Ser His Ala Arg Ser Asn Ser Gly Glu Asp Pro Ala
    130                 135                 140


Asp Ile Ser Asn Leu Gln Asn His
145                 150


<210>  20
<211>  139
<212>  PRT
<213>  Gallus gallus

<300>
<308>  NCBI RefSeq / NP_989764.1
<309>  2016-11-06
<313>  (1)..(139)

<400>  20

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


Ala Ala Arg Gly Asp Leu Leu Arg Val Lys Glu Leu Leu Asp Gly Ala
            20                  25                  30


Ala Asp Pro Asn Ala Val Asn Ser Phe Gly Arg Thr Pro Ile Gln Val
        35                  40                  45


Met Met Leu Gly Ser Pro Arg Val Ala Glu Leu Leu Leu Gln Arg Gly
    50                  55                  60


Ala Asp Pro Asn Arg Pro Asp Pro Arg Thr Gly Cys Arg Pro Ala His
65                  70                  75                  80


Asp Ala Ala Arg Ala Gly Phe Leu Asp Thr Leu Ala Ala Leu His Arg
                85                  90                  95


Ala Gly Ala Arg Leu Asp Leu Pro Asp Gly Arg Gly Arg Leu Pro Ile
            100                 105                 110
```

```
Asp Val Ala Ala Gly Gly Pro His Gly Pro Val Gly Cys Tyr Leu Arg
        115                 120                 125


Arg Leu Pro Ala Leu Pro Arg Ala Pro Leu Pro
    130                 135


<210>  21
<211>  130
<212>  PRT
<213>  Mus musculus

<300>
<308>  NCBI RefSeq / NP_031696.1
<309>  2015-02-15
<313>  (1)..(130)

<400>  21

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


Gly Gln Val Glu Thr Val Arg Gln Leu Leu Glu Ala Gly Ala Asp Pro
            20                  25                  30


Asn Ala Leu Asn Arg Phe Gly Arg Arg Pro Ile Gln Val Met Met Met
        35                  40                  45


Gly Ser Ala Gln Val Ala Glu Leu Leu Leu Leu His Gly Ala Glu Pro
    50                  55                  60


Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala Ala
65                  70                  75                  80


Arg Glu Gly Phe Leu Asp Thr Leu Val Val Leu His Arg Ala Gly Ala
                85                  90                  95


Arg Leu Asp Val Cys Asp Ala Trp Gly Arg Leu Pro Val Asp Leu Ala
            100                 105                 110


Glu Glu Gln Gly His Arg Asp Ile Ala Arg Tyr Leu His Ala Ala Thr
        115                 120                 125


Gly Asp
```

130

<210> 22
<211> 131
<212> PRT
<213> Sus scrofa

<300>
<308> NCBI RefSeq / NP_999289.1
<309> 2016-07-29
<313> (1)..(131)

<400> 22

Met Leu Ser Gly Gly Gly Gly Asp Ala Gly Leu Ala Asn Ala Ala Ala
1 5 10 15

Arg Gly Gln Val Glu Thr Val Arg Gln Leu Leu Glu Ala Gly Ala Asp
20 25 30

Pro Asn Gly Leu Asn His Phe Gly Arg Arg Pro Ile Gln Val Met Met
35 40 45

Met Gly Ser Ala Arg Val Ala Glu Leu Leu Leu Leu His Gly Ala Asp
50 55 60

Pro Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala
65 70 75 80

Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Ala Leu Arg Arg Ala Gly
85 90 95

Ala Arg Leu Asp Val Gln Asp Ala Trp Gly Arg Leu Pro Val Asp Leu
100 105 110

Ala Glu Glu Arg Gly His Arg Asp Val Ala Arg Phe Leu Arg Ala Ala
115 120 125

Ala Gly Asp
130

<210> 23
<211> 131
<212> PRT
<213> Bos taurus

<300>
<308> NCBI RefSeq / NP_001069362.1
<309> 2016-07-29
<313> (1)..(131)

<400> 23

Met Leu Ser Gly Gly Gly Gly Asp Ala Asp Leu Ala Asn Ala Ala Ala
1   5   10   15

Arg Gly Gln Val Glu Ala Val Arg Gln Leu Leu Glu Ala Gly Val Asp
            20   25   30

Pro Asn Arg Leu Asn Arg Phe Gly Arg Arg Pro Ile Gln Val Met Met
        35   40   45

Met Gly Ser Ala Arg Val Ala Glu Leu Leu Leu Leu His Gly Ala Asp
    50   55   60

Pro Asn Cys Ala Asp Pro Ala Thr Leu Thr Arg Pro Val His Asp Ala
65   70   75   80

Ala Arg Glu Gly Phe Leu Asp Thr Leu Val Ala Leu His Arg Ala Gly
                85   90   95

Gly Arg Leu Asp Val Arg Asp Ala Trp Gly Arg Leu Pro Val Asp Leu
            100   105   110

Ala Glu Glu Arg Gly His Arg Asp Val Ala Arg Tyr Leu Arg Ala Thr
        115   120   125

Ala Gly Asp
    130

<210> 24
<211> 126
<212> PRT
<213> Oncorhynchus mykiss

<300>
<308> GenBank / ACO08670.1
<309> 2009-03-27
<313> (1)..(126)

<400> 24

```
Met Thr Met Pro Leu Glu Asp Asp Leu Ala Ser Ala Ala Ala Thr Gly
1               5                   10                  15


Asn Thr Asn Arg Val Lys Ile Leu Leu Gln Ser Gly Val Asp Val Asn
            20                  25                  30


Gly Val Asn Cys Phe Gly Arg Thr Pro Leu Gln Val Met Met Met Gly
        35                  40                  45


Gly Ser Pro Val Ala Gln Leu Leu Leu Met Gln Gly Ala Asp Pro Asn
    50                  55                  60


Ile Ala Asp Arg His Thr Gly Thr Thr Pro Leu His Asp Ala Ala Arg
65                  70                  75                  80


Met Gly Phe Leu Asp Thr Val Glu Ile Leu Val Gln Phe Leu Ala Asp
                85                  90                  95


Pro Asn Ser Arg Asp Asn Arg Asn Cys Arg Pro Ile Asp Leu Ala Ile
            100                 105                 110


Glu Ser Gly His Asn Asn Val Val Ala Phe Leu Lys Ala Leu
        115                 120                 125


<210>  25
<211>  127
<212>  PRT
<213>  Oreochromis niloticus

<300>
<308>  NCBI RefSeq / XP_003452283.1
<309>  2016-12-05
<313>  (1)..(127)

<400>  25

Met Thr Leu Gln Asp Glu Leu Thr Thr Ala Ala Ala Lys Gly Asn Thr
1               5                   10                  15


Ala Ala Val Lys Ala Leu Leu Asp Arg Gly Ala Gln Val Asn Gly Thr
            20                  25                  30


Asn Ser Phe Gly Arg Thr Ala Leu Gln Val Met Met Met Gly Ser Thr
        35                  40                  45
```

Ser Val Ala Gln Leu Leu Leu Glu His Gly Ala Asn Pro Asn Val Gly
    50   55   60

Asp Ser Ser Thr Gly Ala Ser Pro Leu His Asp Ala Ala Arg Thr Gly
65   70   75   80

Phe Val Asp Thr Val His Leu Leu Val Gln His His Ala Asp Pro Gln
                85   90   95

Ala Arg Asp Lys Leu Asn Arg Leu Pro Val Asp Leu Ala Arg Gln His
            100   105   110

Gly His Gly Asp Val Val Asp Phe Leu Glu Ser Leu Gln Asn Pro
        115   120   125

<210> 26
<211> 20
<212> DNA
<213> Gallus gallus

<400> 26
ctctccgtcc tccctacctg   20

<210> 27
<211> 20
<212> DNA
<213> Gallus gallus

<400> 27
gtaccaactg cggggagaaa   20

<210> 28
<211> 20
<212> DNA
<213> Gallus gallus

<400> 28
ggacgccggt caatgaatca   20

<210> 29
<211> 20
<212> DNA
<213> Gallus gallus

<400> 29

caggtgatga tgctgggcag 20

<210> 30
<211> 20
<212> DNA
<213> Gallus gallus

<400> 30
tttctccccg cagttggtac 20

<210> 31
<211> 20
<212> DNA
<213> Gallus gallus

<400> 31
ctgcaagacc caagacgtct 20

<210> 32
<211> 20
<212> DNA
<213> Bos taurus

<400> 32
gcctagtccc acacccttc 20

<210> 33
<211> 20
<212> DNA
<213> Bos taurus

<400> 33
catttaagcc tggcccctga 20

<210> 34
<211> 20
<212> DNA
<213> Bos taurus

<400> 34
tgtccgactc tttgccatcc 20

<210> 35
<211> 20
<212> DNA
<213> Bos taurus

<400> 35
gaccctggat aaggcgtcag 20

<210> 36
<211> 20
<212> DNA
<213> Bos taurus

<400> 36
agtgaatgct ctgggaagcg 20

<210> 37
<211> 20
<212> DNA
<213> Bos taurus

<400> 37
gattgtcagc gcatctgcag 20

<210> 38
<211> 20
<212> DNA
<213> Bos taurus

<400> 38
tagagatctg aaccccacgc 20

<210> 39
<211> 20
<212> DNA
<213> Bos taurus

<400> 39
ctctgatggg agtggggaga 20

<210> 40
<211> 20
<212> DNA
<213> Bos taurus

<400> 40
aggcctttcc tacctggtct 20

<210> 41
<211> 20
<212> DNA
<213> Bos taurus

<400> 41
taattccgct ggtttcccaa 20

<210> 42
<211> 20
<212> DNA
<213> Bos taurus

<400> 42
aaactgctgc gacatctgga 20

<210> 43
<211> 20
<212> DNA
<213> Bos taurus

<400> 43
acggtccctc ttctctctcc 20