SEQUENCE LISTING

<110> The Scripps Research Institute
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Zhou, Wei
Edelman, Gerald M.

<120> REENGINEERING MRNA PRIMARY STRUCTURE FOR ENHANCED PROTEIN PRODUCTION

<130> 37651-503001WO / TSRI 1358.1 PCT / PRM0016P

<150> US 61/155,049
<151> 2009-02-24

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<170> PatentIn version 3.5

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gtcctgcggg gccaggccct gttggtcaac tcttcccagc cgtgggagcc cctgcagctg 360

catgtggata aagccgtcag tggccttcgc agcctcacca ctctgcttcg ggctctggga 420

gcccagaagg aagccatctc ccctccagat gcggcctcag ctgctccact ccgaacaatc 480

actgctgaca ctttccgcaa actcttccga gtctactcca atttcctccg gggaaagctg 540

aagctgtaca caggggaggc ctgcaggaca ggggacagat ga 582

<210> 118
<211> 582
<212> DNA

<213> human

<220>
<223> EPO ORF modified signal peptide

<400> 118
atgggggtgc accagtgtcc cgcttggctt tggcttctcc tctccctcct ctcgctccct 60

ctcggcctcc cagtcctcgg cgccccacca cgcctcatct gtgacagccg agtcctggag 120

aggtacctct tggaggccaa ggaggccgag aatatcacga cgggctgtgc tgaacactgc 180

agcttgaatg agaatatcac tgtcccagac accaaagtta atttctatgc ctggaagagg 240

atggaggtcg ggcagcaggc cgtagaagtc tggcagggcc tggccctgct gtcggaagct 300

gtcctgcggg gccaggccct gttggtcaac tcttcccagc cgtgggagcc cctgcagctg 360

catgtggata aagccgtcag tggccttcgc agcctcacca ctctgcttcg ggctctggga 420

gcccagaagg aagccatctc ccctccagat gcggcctcag ctgctccact ccgaacaatc 480

actgctgaca ctttccgcaa actcttccga gtctactcca atttcctccg gggaaagctg 540

aagctgtaca caggggaggc ctgcaggaca ggggacagat ga 582

<210> 119
<211> 582
<212> DNA
<213> human

<220>
<223> EPO ORF modified signal peptide

<400> 119
atgggggtga gggagtgtcc cgcttggctt tggcttctcc tctccctcct ctcgctccct 60

ctcggcctcc cagtcctcgg cgccccacca cgcctcatct gtgacagccg agtcctggag 120

aggtacctct tggaggccaa ggaggccgag aatatcacga cgggctgtgc tgaacactgc 180

agcttgaatg agaatatcac tgtcccagac accaaagtta atttctatgc ctggaagagg 240

atggaggtcg ggcagcaggc cgtagaagtc tggcagggcc tggccctgct gtcggaagct 300

gtcctgcggg gccaggccct gttggtcaac tcttcccagc cgtgggagcc cctgcagctg 360

catgtggata aagccgtcag tggccttcgc agcctcacca ctctgcttcg ggctctggga 420

gcccagaagg aagccatctc ccctccagat gcggcctcag ctgctccact ccgaacaatc 480

actgctgaca ctttccgcaa actcttccga gtctactcca atttcctccg gggaaagctg 540

aagctgtaca caggggaggc ctgcaggaca ggggacagat ga 582

<210> 120
<211> 660
<212> DNA
<213> E. coli

<220>
<223> Reporter vector pCAT<R>3-Control vector

<400> 120
atggagaaaa aaatcactgg atataccacc gttgatatat cccaatggca tcgtaaagaa 60

cattttgagg catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat 120

attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt 180

cacattcttg cccgcctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggt 240

gagctggtga tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa 300

acgttttcat cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat 360

tcgcaagatg tggcgtgtta cggtgaaaac ctggcctatt tccctaaagg gtttattgag 420

aatatgtttt tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaacgtg 480

gccaatatgg acaacttctt cgcccccgtt ttcaccatgg gcaaatatta tacgcaaggc 540

gacaaggtgc tgatgccgct ggcgattcag gttcatcatg ccgtttgtga tggcttccat 600

gtcggcagaa tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa 660

<210> 121
<211> 660
<212> DNA
<213> E. coli

<220>
<223> modified reporter vector pCAT<R>3-Control vector

<400> 121
atggagaaaa aaatcacagg ctataccacc gtcgacataa gccagtggca ccgtaaagaa 60

cacttcgagg cttttcagtc agtcgctcag tgtacctaca accagaccgt tcagctcgac 120

atcacagcct ttttaaaaac cgtaaaaaaa aacaaacaca agttttaccc ggcctttatc 180

cacatcctcg cccgcctgat gaacgctcac ccggagttcc gtatggcaat gaaagacggg 240

gagctcgtca tctgggacag cgttcacccc tgttacaccg ttttccacga gcaaacagaa 300

acttttttctt cgctttggtc agagtaccac gacgacttcc ggcagtttct acacatctac 360

tcgcaagacg tcgcctgtta cggggaaaac ctcgcctact tccctaaagg gtttatcgag 420

aacatgtttt tcgtctcagc caacccctgg gtcagtttca ccagtttcga cttaaacgta 480

gccaacatgg acaacttctt cgccccgtt ttcaccatgg gcaagtacta cactcaaggc 540

gacaaagtcc tcatgccgct cgcgatccag gttcaccacg ccgtctgcga cggcttccac 600

gtcggccgga tgcttaacga gttacaacag tactgcgacg agtggcaggg cggggcgtaa 660

<210> 122
<211> 660
<212> DNA
<213> E. coli

<220>
<223> partially modified reporter vector pCAT<R>3-Control vector

<400> 122
atggagaaaa aaatcacagg ctataccacc gtcgacataa gccagtggca ccgtaaagaa 60

cacttcgagg cttttcagtc agtcgctcag tgtacctaca accagaccgt tcagctggat 120

attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt 180

cacattcttg cccgcctgat gaatgctcat ccggaattcc gtatggcaat gaaagacggt 240

gagctggtga tatgggatag tgttcaccct tgttacaccg ttttccatga gcaaactgaa 300

acgttttcat cgctctggag tgaataccac gacgatttcc ggcagtttct acacatatat 360

tcgcaagatg tggcgtgtta cggtgaaaac ctggcctatt tccctaaagg gtttattgag 420

aatatgtttt tcgtctcagc caatccctgg gtgagtttca ccagttttga tttaaacgtg 480

gccaatatgg acaacttctt cgccccgtt ttcaccatgg gcaaatatta tacgcaaggc 540

gacaaggtgc tgatgccgct ggcgattcag gttcatcatg ccgtttgtga tggcttccat 600

gtcggcagaa tgcttaatga attacaacag tactgcgatg agtggcaggg cggggcgtaa 660

<210> 123
<211> 65
<212> DNA
<213> human

<220>
<223> CD5 signal peptide sequence

<400> 123
atgcccatgg ggtctctgca accgctggcc accttgtacc tgctggggat gctggtcgct 60

tccgt 65

<210> 124
<211> 65
<212> DNA
<213> human

<220>
<223> CD5 signal peptide sequence modified

<400> 124
atgcccatcg ggtctctgca accgctggcc accttgtacc tgctggggat cctggtcgct 60

tccgt 65

<210> 125
<211> 65
<212> DNA
<213> human

<220>
<223> CD5 signal peptide sequence modified

<400> 125
atgcccatgg ggtctctcca accgctcgcc accttgtacc tcctcgggat gctcgtcgct 60

tccgt 65

<210> 126
<211> 65
<212> DNA
<213> human

<220>
<223> CD5 signal peptide sequence modified

<400> 126
atgcccatcg ggtctctcca accgctcgcc accttgtacc tcctcgggat cctcgtcgct 60

tccgt 65

<210> 127
<211> 65
<212> DNA
<213> human

<220>
<223> CD5 signal peptide sequence modified

<400> 127
atggctatcg ggtctctcca accgctcgcc accttgtacc tcctcgggat cctcgtcgct 60

tccgt 65

<210> 128
<211> 738
<212> DNA
<213> human

<220>
<223> Anti Thy-VL ORF containing light chain signal peptide 1

<400> 128
atggacatga gggtccccgc tcagctcctg gggctcctgc tgctctggct cccaggtgcc 60

agatgtgata tcctcgtgat gacccagtct ccagtcaccc tgtctttgtc ttcaggggaa 120

agagccaccc tctcctgcag ggccagtcag agtattagta actccttagc ctggtaccaa 180

cagaaacctg gcctggctcc caggctcctc atctatgatg catccaacag ggccactggc 240

gtcccagcca ggttcagtgg cagtgggtct gggacagact tcaatctcac catcagcagc 300

ttcaatctca ccatcagcag cctagaccct gaagatgttg cagtgtatta ctgtcaccag 360

cgtagcaact ggcctccttt cactttcggc ggagggacca aggtggagat caaacgtacg 420

gtggctgcac catctgtctt catcttcccg ccatctgatg agcagttgaa atctggaact 480

gcctctgttg tgtgcctgct gaataacttc tatcccagag aggccaaagt acagtggaag 540

gtggataacg ccctccaatc gggtaactcc caggagagtg tcacagagca ggacagcaag 600

gacagcacct acagcctcag cagcaccctg acgctgagca aagcagacta cgagaaacac 660

aaagtctacg cctgcgaagt cacccatcag ggcctgagct cgcccgtcac aaagagcttc 720

aacaggggag agtgttag 738

<210> 129
<211> 738
<212> DNA
<213> human

<220>
<223> Anti Thy-VL ORF containing light chain signal peptide 1mod

<400> 129
atggacatca gggtccccgc tcagctcctc gggctcctcc tcctttggct cccaggtgcc 60

aggtgtgata tcctcgtgat gacccagtct ccagtcaccc tgtctttgtc ttcaggggaa 120

agagccaccc tctcctgcag ggccagtcag agtattagta actccttagc ctggtaccaa 180

cagaaacctg gcctggctcc caggctcctc atctatgatg catccaacag ggccactggc 240

gtcccagcca ggttcagtgg cagtgggtct gggacagact tcaatctcac catcagcagc 300

ttcaatctca ccatcagcag cctagaccct gaagatgttg cagtgtatta ctgtcaccag 360

cgtagcaact ggcctccttt cactttcggc ggagggacca aggtggagat caaacgtacg 420

gtggctgcac catctgtctt catcttcccg ccatctgatg agcagttgaa atctggaact 480

gcctctgttg tgtgcctgct gaataacttc tatcccagag aggccaaagt acagtggaag 540

gtggataacg ccctccaatc gggtaactcc caggagagtg tcacagagca ggacagcaag 600

gacagcacct acagcctcag cagcaccctg acgctgagca aagcagacta cgagaaacac 660

aaagtctacg cctgcgaagt cacccatcag ggcctgagct cgcccgtcac aaagagcttc 720

aacaggggag agtgttag 738

<210> 130
<211> 732
<212> DNA
<213> human

<220>
<223> Anti Thy-VL ORF containing light chain signal peptide 2

<400> 130
atgagggtcc ccgcgctgct cctggggctg ctaatgctct ggatacctgg atctagtgca 60

gatatcctcg tgatgaccca gtctccagtc accctgtctt tgtcttcagg ggaaagagcc 120

accctctcct gcagggccag tcagagtatt agtaactcct tagcctggta ccaacagaaa 180

cctggcctgg ctcccaggct cctcatctat gatgcatcca acagggccac tggcgtccca 240

gccaggttca gtggcagtgg gtctgggaca gacttcaatc tcaccatcag cagcttcaat 300

ctcaccatca gcagcctaga ccctgaagat gttgcagtgt attactgtca ccagcgtagc 360

aactggcctc ctttcacttt cggcggaggg accaaggtgg agatcaaacg tacggtggct 420

gcaccatctg tcttcatctt cccgccatct gatgagcagt tgaaatctgg aactgcctct 480

gttgtgtgcc tgctgaataa cttctatccc agagaggcca aagtacagtg gaaggtggat 540

aacgccctcc aatcgggtaa ctcccaggag agtgtcacag agcaggacag caaggacagc 600

acctacagcc tcagcagcac cctgacgctg agcaaagcag actacgagaa acacaaagtc 660

tacgcctgcg aagtcaccca tcagggcctg agctcgcccg tcacaaagag cttcaacagg 720

ggagagtgtt ag 732

<210> 131
<211> 1640
<212> DNA
<213> human

<220>
<223> Anti Thy-VH containing heavy chain signal peptide 1

<400> 131
atggactgga cctggaggtt cctctttgtg gtggcagcag ctacaggtgt ccagtcccag 60

gtgcaattgc tcgaggagtc gggggctgag ttgaagaagc ctggggcctc agtgaaggtc 120

tcctgcaagg cttctggata caccttcacc gcctactaca tacactgggt gcgtcaggcc 180

cctggacaag ggcttgagtg gatgggatgg atcaacccta acagtggtgg cacaaactat 240

gcacagaagt ttcagggcag ggtcaccatg accagggaca cgtccagcag cacagcctac 300

atggacctga gcaggctgac atctgacgac acggccgtct attactgtgc gcgagaaaat 360

ggtcctttaa acaccgcctt cttctacggt ttggacgtct ggggccaagg gacactagtc 420

accgtctcct cagcctccac caagggccca tcggtcttcc ccctggcacc ctcctccaag 480

agcacctctg ggggcacagc ggccctgggc tgcctggtca aggactactt ccccgaaccg 540

gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 600

ctacagtcct caggactcta ctccctcagc agcgtggtga ccgtgccctc cagcagcttg 660

ggcacccaga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtcgacaag 720

aaagttgagc ccaaatcttc tgacaaaact cacacatgcc caccgtgccc aggtaagcca 780

gcccaggcct cgccctccag ctcaaggcgg gacaggtgcc ctagagtagc ctgcatccag 840

ggacaggccc cagccgggtg ctgacacgtc cacctccatc tcttcctcag cacctgaact 900

cctgggggga ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc 960

ccggaccccc gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa 1020

gttcaactgg tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga 1080

gcagtacaac agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct 1140

gaatggcaag gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa 1200

aaccatctcc aaagccaaag gtgggacccg tggggtgcga gggccacatg gacagaggcc 1260

ggctcggccc accctctgcc ctgagagtga ccgctgtacc aacctctgtc cctacagggc 1320

agccccgaga accacaggtg tacaccctgc ccccatcacg ggaggagatg accaagaacc 1380

aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc gtggagtggg 1440

agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg gactccgacg 1500

gctccttctt cctctatagc aagctcaccg tggacaagag caggtggcag caggggaacg 1560

tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag aagagcctct 1620

ccctgtcccc gggtaaataa 1640

<210> 132
<211> 1640

<212> DNA
<213> human

<220>
<223> Anti Thy-VH containing heavy chain signal peptide 1 mod

<400> 132
atggattgga cttggaggtt cctctttgtg gtggcagcag ctacaggtgt ccagtcccag 60

gtgcaattgc tcgaggagtc gggggctgag ttgaagaagc ctggggcctc agtgaaggtc 120

tcctgcaagg cttctggata caccttcacc gcctactaca tacactgggt gcgtcaggcc 180

cctggacaag ggcttgagtg gatgggatgg atcaacccta acagtggtgg cacaaactat 240

gcacagaagt ttcagggcag ggtcaccatg accagggaca cgtccagcag cacagcctac 300

atggacctga gcaggctgac atctgacgac acggccgtct attactgtgc gcgagaaaat 360

ggtcctttaa acaccgcctt cttctacggt ttggacgtct ggggccaagg gacactagtc 420

accgtctcct cagcctccac caagggccca tcggtcttcc ccctggcacc ctcctccaag 480

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gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 600

ctacagtcct caggactcta ctccctcagc agcgtggtga ccgtgccctc cagcagcttg 660

ggcacccaga cctacatctg caacgtgaat cacaagccca gcaacaccaa ggtcgacaag 720

aaagttgagc ccaaatcttc tgacaaaact cacacatgcc caccgtgccc aggtaagcca 780

gcccaggcct cgccctccag ctcaaggcgg gacaggtgcc ctagagtagc ctgcatccag 840

ggacaggccc cagccgggtg ctgacacgtc cacctccatc tcttcctcag cacctgaact 900

cctgggggga ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc 960

ccggaccccc gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa 1020

gttcaactgg tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga 1080

gcagtacaac agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct 1140

gaatggcaag gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa 1200

aaccatctcc aaagccaaag gtgggacccg tggggtgcga gggccacatg gacagaggcc 1260

ggctcggccc accctctgcc ctgagagtga ccgctgtacc aacctctgtc cctacagggc 1320

agccccgaga accacaggtg tacaccctgc ccccatcacg ggaggagatg accaagaacc 1380

aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc gtggagtggg 1440

agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg gactccgacg 1500

gctccttctt cctctatagc aagctcaccg tggacaagag caggtggcag caggggaacg 1560

tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag aagagcctct 1620

ccctgtcccc gggtaaataa 1640

<210> 133
<211> 1640
<212> DNA
<213> human

<220>
<223> Anti Thy-VH containing heavy chain signal peptide 2

<400> 133
atggattgga cttggaggtt cctctttgtg gtggcagcag ctacaggtgt ccagtcccag 60

gtgcaattgc tcgaggagtc gggggctgag ttgaagaagc ctggggcctc agtgaaggtc 120

tcctgcaagg cttctggata caccttcacc gcctactaca tacactgggt gcgtcaggcc 180

cctggacaag ggcttgagtg gatgggatgg atcaacccta acagtggtgg cacaaactat 240

gcacagaagt ttcagggcag ggtcaccatg accagggaca cgtccagcag cacagcctac 300

atggacctga gcaggctgac atctgacgac acggccgtct attactgtgc gcgagaaaat 360

ggtcctttaa acaccgcctt cttctacggt ttggacgtct ggggccaagg gacactagtc 420

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agcacctctg ggggcacagc ggccctgggc tgcctggtca aggactactt ccccgaaccg 540

gtgacggtgt cgtggaactc aggcgccctg accagcggcg tgcacacctt cccggctgtc 600

ctacagtcct caggactcta ctccctcagc agcgtggtga ccgtgccctc cagcagcttg 660

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aaagttgagc ccaaatcttc tgacaaaact cacacatgcc caccgtgccc aggtaagcca 780

gcccaggcct cgccctccag ctcaaggcgg gacaggtgcc ctagagtagc ctgcatccag 840

ggacaggccc cagccgggtg ctgacacgtc cacctccatc tcttcctcag cacctgaact 900

cctgggggga ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc 960

ccggaccccc gaggtcacat gcgtggtggt ggacgtgagc cacgaagacc ctgaggtcaa 1020

gttcaactgg tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga 1080

gcagtacaac agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct 1140

gaatggcaag gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa 1200

aaccatctcc aaagccaaag gtgggacccg tggggtgcga gggccacatg gacagaggcc 1260

ggctcggccc accctctgcc ctgagagtga ccgctgtacc aacctctgtc cctacagggc 1320

agccccgaga accacaggtg tacaccctgc ccccatcacg ggaggagatg accaagaacc 1380

aggtcagcct gacctgcctg gtcaaaggct tctatcccag cgacatcgcc gtggagtggg 1440

agagcaatgg gcagccggag aacaactaca agaccacgcc tcccgtgctg gactccgacg 1500

gctccttctt cctctatagc aagctcaccg tggacaagag caggtggcag caggggaacg 1560

tcttctcatg ctccgtgatg catgaggctc tgcacaacca ctacacgcag aagagcctct 1620

ccctgtcccc gggtaaataa 1640

<210> 134
<211> 687
<212> DNA
<213> Artificial sequence

<220>
<223> HcRed1 ORF Reef Coral - human codon optimized

<400> 134
atggtgagcg gcctgctgaa ggagagtatg cgcatcaaga tgtacatgga gggcaccgtg 60

aacggccact acttcaagtg cgagggcgag ggcgacggca acccccttcgc cggcacccag 120

agcatgagaa tccacgtgac cgagggcgcc cccctgccct tcgccttcga catcctggcc 180

ccctgctgcg agtacggcag caggaccttc gtgcaccaca ccgccgagat ccccgacttc 240

ttcaagcaga gcttccccga gggcttcacc tgggagagaa ccaccaccta cgaggacggc 300

ggcatcctga ccgcccacca ggacaccagc ctggagggca actgcctgat ctacaaggtg 360

aaggtgcacg gcaccaactt ccccgccgac ggccccgtga tgaagaacaa gagcggcggc 420

tgggagccca gcaccgaggt ggtgtacccc gagaacggcg tgctgtgcgg ccggaacgtg 480

atggccctga aggtgggcga ccggcacctg atctgccacc actacaccag ctaccggagc 540

aagaaggccg tgcgcgccct gaccatgccc ggcttccact tcaccgacat ccggctccag 600

atgctgcgga agaagaagga cgagtacttc gagctgtacg aggccagcgt ggcccggtac 660

agcgacctgc ccgagaaggc caactga 687

<210> 135
<211> 687
<212> DNA
<213> Artificial sequence

<220>
<223> HcRed1 ORF modified Reef Coral - human codon optimized

<400> 135
atggtcagcg gcctcctcaa agagtccatg cgcattaaaa tgtacatgga gggcaccgtc 60

aacggccact acttcaagtg cgagggcgag ggcgacggca acccccttcgc cggcacccag 120

tctatgcgga tccacgtcac cgagggcgcc cccctccccct tcgccttcga catcctcgcc 180

ccttgttgcg agtacggcag cagaaccttc gtccaccaca ccgccgagat ccccgacttc 240

ttcaaacaga gcttccccga gggcttcact tgggagagaa ccaccaccta cgaggacggc 300

ggcatcctca ccgcccacca ggacaccagc ctcgagggca actgcctcat ctacaaggtc 360

aaagtccacg gcaccaactt ccccgccgac ggccccgtca tgaaaaacaa aagcggcggt 420

tgggagccca gcaccgaggt cgtctacccc gagaacggcg tcctttgcgg ccggaacgtc 480

atggccctca aagtcggcga ccggcacctc atttgccacc actacaccag ctaccggagc 540

aaaaaagccg tccgcgccct caccatgccc ggcttccact tcaccgacat ccggctccag 600

atgctccgga aaaaaaaaga cgagtacttc gagctctacg aggccagcgt ggccccggtac 660

agcgacctcc ccgagaaagc caattga 687

<210> 136
<211> 687
<212> DNA
<213> artificial sequence

<220>
<223> HcRed1 ORF partially modified Reef Coral - human codon optimized

<400> 136
atggtcagcg gcctcctcaa agagtccatg cgcattaaaa tgtacatgga gggcaccgtc 60

aacggccact acttcaagtg cgagggcgag ggcgacggca acccccttcgc cggcacccag 120

agcatgagaa tccacgtgac cgagggcgcc cccctgcccct tcgccttcga catcctggcc 180

ccctgctgcg agtacggcag caggaccttc gtgcaccaca ccgccgagat ccccgacttc 240

ttcaagcaga gcttccccga gggcttcacc tgggagagaa ccaccaccta cgaggacggc 300

ggcatcctga ccgcccacca ggacaccagc ctggagggca actgcctgat ctacaaggtg 360

aaggtgcacg gcaccaactt ccccgccgac ggccccgtga tgaagaacaa gagcggcggc 420

tgggagccca gcaccgaggt ggtgtacccc gagaacggcg tgctgtgcgg ccggaacgtg 480

atggccctga aggtgggcga ccggcacctg atctgccacc actacaccag ctaccggagc 540

aagaaggccg tgcgcgccct gaccatgccc ggcttccact tcaccgacat ccggctccag 600

atgctgcgga agaagaagga cgagtacttc gagctgtacg aggccagcgt ggcccggtac 660

agcgacctgc ccgagaaggc caactga 687

<210> 137
<211> 744
<212> DNA
<213> human

<220>
<223> Mutated Anti-Thy VL ORF with CD5 signal peptide

<400> 137
atgcccatgg ggtctctgca accgctggcc accttgtacc tgctggggat gctggtcgct 60

tccgtgctag cggatatcct cgtgatgacc cagtctccag tcaccctgtc tttgtcttca 120

ggggaaagag ccaccctctc ctgcagggcc agtcagagta ttagtaactc cttagcctgg 180

taccaacaga aacctggcct ggctcccagg ctcctcatct atgatgcatc caacagggcc 240

actggcgtcc cagccaggtt cagtggcagt gggtctggga cagacttcaa tctcaccatc 300

agcagcttca atctcaccat cagcagccta gaccctgaag atgttgcagt gtattactgt 360

caccagcgta gcaactggcc tcctttcact ttcggcggag ggaccaaggt ggagatcaaa 420

cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 480

ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 540

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 600

agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 660

aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 720

agcttcaaca ggggagagtg ttag 744

<210> 138
<211> 744
<212> DNA
<213> human

<220>
<223> Mutated Anti-Thy VL ORF with CD5 signal peptide

<400> 138
atgcccatcg ggtctctgca accgctggcc accttgtacc tgctggggat cctggtcgct 60

tccgtgctag cggatatcct cgtgatgacc cagtctccag tcaccctgtc tttgtcttca 120

ggggaaagag ccaccctctc ctgcagggcc agtcagagta ttagtaactc cttagcctgg 180

taccaacaga aacctggcct ggctcccagg ctcctcatct atgatgcatc caacagggcc 240

actggcgtcc cagccaggtt cagtggcagt gggtctggga cagacttcaa tctcaccatc 300

agcagcttca atctcaccat cagcagccta gaccctgaag atgttgcagt gtattactgt 360

caccagcgta gcaactggcc tcctttcact ttcggcggag ggaccaaggt ggagatcaaa 420

cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 480

ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 540

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 600

agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 660

aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 720

agcttcaaca ggggagagtg ttag 744

<210> 139
<211> 744
<212> DNA
<213> human

<220>
<223> Mutated Anti-Thy VL ORF with CD5 signal peptide

<400> 139
atgcccatgg ggtctctcca accgctcgcc accttgtacc tcctcgggat gctcgtcgct 60

tccgtgctag cggatatcct cgtgatgacc cagtctccag tcaccctgtc tttgtcttca 120

ggggaaagag ccaccctctc ctgcagggcc agtcagagta ttagtaactc cttagcctgg 180

taccaacaga aacctggcct ggctcccagg ctcctcatct atgatgcatc caacagggcc 240

actggcgtcc cagccaggtt cagtggcagt gggtctggga cagacttcaa tctcaccatc 300

agcagcttca atctcaccat cagcagccta gaccctgaag atgttgcagt gtattactgt 360

caccagcgta gcaactggcc tcctttcact ttcggcggag ggaccaaggt ggagatcaaa 420

cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 480

ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 540

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 600

agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 660

aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 720

agcttcaaca ggggagagtg ttag 744

<210> 140
<211> 744

<212> DNA
<213> human

<220>
<223> Mutated Anti-Thy VL ORF with CD5 signal peptide

<400> 140
atgcccatcg ggtctctcca accgctcgcc accttgtacc tcctcgggat cctcgtcgct 60

tccgtgctag cggatatcct cgtgatgacc cagtctccag tcaccctgtc tttgtcttca 120

ggggaaagag ccaccctctc ctgcagggcc agtcagagta ttagtaactc cttagcctgg 180

taccaacaga aacctggcct ggctcccagg ctcctcatct atgatgcatc caacagggcc 240

actggcgtcc cagccaggtt cagtggcagt gggtctggga cagacttcaa tctcaccatc 300

agcagcttca atctcaccat cagcagccta gaccctgaag atgttgcagt gtattactgt 360

caccagcgta gcaactggcc tcctttcact ttcggcggag ggaccaaggt ggagatcaaa 420

cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 480

ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 540

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 600

agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 660

aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 720

agcttcaaca ggggagagtg ttag 744

<210> 141
<211> 744
<212> DNA
<213> human

<220>
<223> Mutated Anti-Thy VL ORF with CD5 signal peptide

<400> 141
atggctatcg ggtctctcca accgctcgcc accttgtacc tcctcgggat cctcgtcgct 60

tccgtgctag cggatatcct cgtgatgacc cagtctccag tcaccctgtc tttgtcttca 120

ggggaaagag ccaccctctc ctgcagggcc agtcagagta ttagtaactc cttagcctgg 180

taccaacaga aacctggcct ggctcccagg ctcctcatct atgatgcatc caacagggcc 240

actggcgtcc cagccaggtt cagtggcagt gggtctggga cagacttcaa tctcaccatc 300

agcagcttca atctcaccat cagcagccta gaccctgaag atgttgcagt gtattactgt 360

caccagcgta gcaactggcc tcctttcact ttcggcggag ggaccaaggt ggagatcaaa 420

cgtacggtgg ctgcaccatc tgtcttcatc ttcccgccat ctgatgagca gttgaaatct 480

ggaactgcct ctgttgtgtg cctgctgaat aacttctatc ccagagaggc caaagtacag 540

tggaaggtgg ataacgccct ccaatcgggt aactcccagg agagtgtcac agagcaggac 600

agcaaggaca gcacctacag cctcagcagc accctgacgc tgagcaaagc agactacgag 660

aaacacaaag tctacgcctg cgaagtcacc catcagggcc tgagctcgcc cgtcacaaag 720

agcttcaaca ggggagagtg ttag 744

<210> 142
<211> 24
<212> RNA
<213> human

<220>
<223> Mutated miR-183 binding sequence

<400> 142
aaagcggaua cucacuggac acca 24

<210> 143
<211> 756
<212> DNA
<213> Artificial sequence

<220>
<223> miR-183 CAT FLAG sequence

<400> 143
atggagaaaa aaatcacagg atataccacc gttgatatat cccaatggca tcgtaaagaa 60

cattttcagg catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat 120

attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt 180

cacattcttg cccgcctgat gaatgctcat ccggaaaagc gaattctcac aggccatcat 240

ccggaactcc gtatggcaat gaaagacggt gagctggtga tatgggatag tgttcaccct 300

tgttacaccg ttttccatga gcaaactgaa acgttttcat cgctctggag tgaataccac 360

gacgatttcc ggcagtttct acacatatat tcgcaagatg tggcgtgtta cggtgaaaac 420

ctggcctatt tccctaaagg gtttattgag aatatgtttt tcgtctcagc caatccctgg 480

gtgagtttca ccagttttga tttaaacgtg gccaatatgg acaacttctt cgcccccgtt 540

ttcacgatgg gcaaatatta tacgcaaggc gacaaggtgc tgatgccgct ggcgattcag 600

gttcatcatg ccgtttgtga tggcttccat gtcggcagaa tgcttaatga attacaacag 660

tactgcgatg agtggcaggg cggggcggac tacaaagacc atgacggtga ttataaagat 720

catgacatcg attacaagga tgacgatgac aagtaa 756

<210> 144
<211> 756
<212> DNA
<213> Artificial sequence

<220>
<223> Mutated miR-183 CAT FLAG sequence

<400> 144
atggagaaaa aaatcacagg atataccacc gttgatatat cccaatggca tcgtaaagaa 60

cattttcagg catttcagtc agttgctcaa tgtacctata accagaccgt tcagctggat 120

attacggcct ttttaaagac cgtaaagaaa aataagcaca agttttatcc ggcctttatt 180

cacattcttg cccgcctgat gaatgctcat ccggaaaagc ggatactcac tggacaccat 240

ccggaactcc gtatggcaat gaaagacggt gagctggtga tatgggatag tgttcaccct 300

tgttacaccg ttttccatga gcaaactgaa acgttttcat cgctctggag tgaataccac 360

gacgatttcc ggcagtttct acacatatat tcgcaagatg tggcgtgtta cggtgaaaac 420

ctggcctatt tccctaaagg gtttattgag aatatgtttt tcgtctcagc caatccctgg 480

gtgagtttca ccagttttga tttaaacgtg gccaatatgg acaacttctt cgccccgtt 540

ttcacgatgg gcaaatatta tacgcaaggc gacaaggtgc tgatgccgct ggcgattcag 600

gttcatcatg ccgtttgtga tggcttccat gtcggcagaa tgcttaatga attacaacag 660

tactgcgatg agtggcaggg cggggcggac tacaaagacc atgacggtga ttataaagat 720

catgacatcg attacaagga tgacgatgac aagtaa 756

<210> 145
<211> 93
<212> DNA
<213> Pichia pastoris

<220>
<223> Kar2 signal peptide

<400> 145
atgctgtcgt taaaaccatc ttggctgact ttggcggcat taatgtatgc catgctattg 60

gtcgtagtgc catttgctaa acctgttaga gct 93

<210> 146
<211> 93
<212> DNA

<213> pichia pastoris

<220>
<223> Rescue version of signal peptide

<400> 146
atgctctcgt taaaaccatc ttggctcact ttggcggcat taatttacgc catcctattg 60

gtcgtagtgc catttgctaa acccgttaga gct 93

<210> 147
<211> 78
<212> DNA
<213> Gallus gallus

<220>
<223> Lysozyme signal sequence

<400> 147
atgctgggta agaaggaccc aatgtgtctt gttttggtct tgttgggatt gactgctttg 60

ttgggtatct gtcaaggt 78

<210> 148
<211> 78
<212> DNA
<213> Gallus gallus

<220>
<223> Rescue version signal sequence

<400> 148
atgctcggta agaacgaccc aatttgtctt gttttggtct tgttgggatt gaccgctttg 60

ttgggtattt gtcaaggt 78

<210> 149
<211> 69
<212> DNA
<213> human

<220>
<223> granulocyte colony-stimulating factor receptor precursor

<400> 149
atgaggctgg gaaactgcag cctgacttgg gctgccctga tcatcctgct gctccccgga 60

agtctggag 69

<210> 150
<211> 69
<212> DNA
<213> human

<220>
<223> Rescue version signal sequence

<400> 150
atgaggcttg gaaattgtag cctcacttgg gccgccctca tcatcctcct tctccccgga 60

agtctcgag 69

<210> 151
<211> 70
<212> DNA
<213> human

<220>
<223> calcitonin receptor precursor signal sequence

<400> 151
atgaggacat ttacaagccg gtgcttggca ctgtttcttc ttctaaatca cccaacccca 60

attcttcctg 70

<210> 152
<211> 70
<212> DNA
<213> human

<220>
<223> Rescue version signal sequence

<400> 152
atgaggacat ttacaagccg ttgcttggca ctctttcttc ttctaaatca cccaacccca 60

attcttcccg 70

<210> 153
<211> 69
<212> DNA
<213> human

<220>
<223> Cell adhesion molecule 3 precursor

<400> 153
atggccccag ccgcctcgct cctgctcctg ctcctgctgt tcgcctgctg ctgggcgccc 60

ggcggggcc 69

<210> 154
<211> 69
<212> DNA
<213> human

<220>
<223> Rescue version signal sequence

<400> 154
atggccccag ccgcctcgct ccttctcctt ctccttctct ttgcttgttg ttgggcgccc 60

ggcggggcc 69

<210> 155
<211> 66
<212> DNA
<213> human

<220>
<223> HLA class I histocompatibility antigen signal sequence

<400> 155
atggtcgcgc cccgaaccct cctcctgcta ctctcggggg ccctggccct gacccagacc 60

tgggcg 66

<210> 156
<211> 66
<212> DNA
<213> human

<220>
<223> Rescue version signal sequence

<400> 156
atggtcgcgc cccgaaccgt cctccttctt ctctcggcgg ccctcgccct taccgagact 60

tgggcc 66