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<150> US 63/135,501
<151> 2021-01-08

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attgacgaaa aggccttcga gaacgtaacc gacctgcagt ggctgatcct ggaccacaac 3660

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aaggggctga aaagcctgga gtacctggac ctgagtttta accagatcgc cagactgccc 3960

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ctggccgaca gcggaatccc cggcaacagc ttcaacgtga gcagcttggt ggagttggac 4140

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ctcgaggtta accagcttga gaagttcgac atcaagagct tctgcaagat cctgggcccc 4260

ctcagctaca gcaagatcaa gcacttgaga ctggacggga acagaatcag cgaaaccagc 4320

cttcctcccg acatgtacga gtgccttaga gtggcaaatg aggtgaccct gaac 4374

<210> 26
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of L1

<400> 26
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gct 63

<210> 27
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of L2

<400> 27
atgcgcgtgc ccgcacaatt gctcggactg ctgctactgt ggctgcccgg ggctcgctgc 60

gca 63

<210> 28
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of L3

<400> 28
atgagagttc ctgctcaact actagggctg ctgttgttgt ggttgcccgg cgcgcgatgc 60

gca 63

<210> 29
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of M1

<400> 29
atgagagtcc ccgcccagct gctggggctt cttttgcttt ggcttcctgg cgcaagatgc 60

gct 63

<210> 30
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of M2

<400> 30
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gca 63

<210> 31
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of M3

<400> 31
atgagagtcc cagctcagct gctgggccta ctgctgctat ggctccccgg cgcgcggtgc 60

gcc 63

<210> 32
<211> 65
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of H1

<400> 32
cvatgagagt gcccgcccag ttgcttggcc tgctgctcct atggcttccc ggcgccagat 60

gcgcc 65

<210> 33
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of H2

<400> 33
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gct 63

<210> 34
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of H3

<400> 34
atgagagtgc ccgcccagct gctgggcctg ctgttgctgt ggctgcccgg cgccagatgc 60

gcc 63

<210> 35
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of CO

<400> 35
atgagagtgc ccgcccagct gctgggcctg ctgctgctgt ggctgcccgg cgccagatgc 60

gcc 63

<210> 36
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of CP

<400> 36
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gcc 63

<210> 37
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of vH1

<400> 37
atgagagtgc ccgcccagct gctgggcctg ctgctgctgt ggctgcccgg cgccagatgc 60

gcc 63

<210> 38
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of vH2

<400> 38
atgagagtgc ccgcccagct gctgggcctg ctgctgctgt ggctgcccgg cgccagatgt 60

gcc 63

<210> 39
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of vH3

<400> 39
atgagagtgc ccgcccagct tctgggcctg ctgctgctgt ggctgcccgg cgccagatgc 60

gcc 63

<210> 40
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of A1

<400> 40
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gcc 63

<210> 41
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of A2

<400> 41
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gcc 63

<210> 42
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of A3

<400> 42
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 43
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of A4

<400> 43
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 44
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of B1

<400> 44
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 45
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of B2

<400> 45
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 46
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of B3

<400> 46
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 47
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of B4

<400> 47
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 48
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of C1

<400> 48
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gcc 63

<210> 49
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequence of C2

<400> 49
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 50
<211> 63
<212> DNA
<213> Artificial Sequence

<220>
<223> Leader Sequene of C3

<400> 50
atgagggtcc ccgctcagct cctggggctc ctgctgctct ggctcccagg tgcacgatgt 60

gcc 63

<210> 51
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL-12b of L1

<400> 51
atctgggaat taaagaaaga tgtgtacgtg gtggaattgg attggtaccc agatgctccg 60

ggcgaaatgg ttgtactcac atgcgatact ccggaggaag acggtatcac ttggacattg 120

gatcagtcga gtgaggttct cggtagtggt aaaacactaa cgatccaagt caaagaattc 180

ggtgatgcgg ggcaatatac ctgtcataaa ggcggcgaag tactatctca tagcctcctg 240

ctgttacaca agaaggaaga tggcatatgg tccaccgaca tccttaagga tcagaaagaa 300

cccaagaaca aaactttctt gcgttgcgaa gctaagaact actccggccg cttcacatgc 360

tggtggttga caacgatcag tacggatcta accttctctg ttaagtccag tcgggggagt 420

tcggaccccc aaggcgtcac gtgtggagct gccacacttt ccgctgagcg cgtacgtgga 480

gataataaag agtatgaata ctccgttgag tgccaggagg actccgcgtg ccccgctgcc 540

gaggagagtc tccccataga ggtgatggtc gacgctgttc acaaactgaa atatgagaac 600

tatacctcat ccttctttat acgtgacata attaagccag atcccccgaa gaacttacaa 660

ttgaaaccat tgaagaattc acgtcaagtc gaggtatcct gggagtatcc cgacacctgg 720

tccacgccac actcatattt ctctctgacc ttctgtgtgc aggtacaagg caagagcaaa 780

cgagaaaaaa aggacagagt tttcacggat aagactagcg ccacagtgat atgtaggaaa 840

aacgcatcga tctcagtccg cgcgcaagat cggtattact caagcagttg gtcagagtgg 900

gcatcggtgc cctgctcg 918

<210> 52
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL-12b of L2

<400> 52
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ggggagatgg tggttttgac gtgtgacacc ccggaagaag atggaattac atggacctta 120

gaccaatcct ccgaggttct tggctcgggc aaaaccttga ccattcaggt caaggaattt 180

ggcgatgctg gccaatacac ctgccataaa ggtggtgaag ttttatctca ctccctactg 240

ttgctccata agaaagaaga cggcatttgg tcgacagaca tattgaagga tcagaaggaa 300

cctaagaata agaccttctt acgatgtgag gccaagaatt attccggacg ttttacgtgt 360

tggtggttga ccacgatctc cactgactta accttctcag tgaaatcctc acgaggtagt 420

tccgatcccc agggtgtgac gtgcggtgcg gccacgttaa gtgctgagag agtacggggc 480

gacaataagg aatacgagta ctcagttgaa tgccaagagg actcggcctg tcccgcggca 540

gaggagagtc tccctatcga agtgatggtg gatgcggtgc acaagctcaa gtatgaaaat 600

tacacatcat ctttttcat cagagacatt ataaagcccg acccaccaaa gaacctccag 660

ttaaagccct taaagaacag tagacaggtt gaagtatcat gggaataccc agacacctgg 720

tccacacccc attcgtattt ttccttgacg ttttgcgtac aagttcaggg aaagtccaaa 780

cgggaaaaga aagaccgcgt ttttacagac aaaacttctg ccactgtcat ctgtagaaag 840

aacgcatcaa ttagcgtgcg agcgcaagac agatactatt caagtagctg gagcgagtgg 900

gccagtgttc catgttct 918

<210> 53
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL-12b of L3

<400> 53
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ggcgaaatgg ttgtgcttac gtgcgatacc cccgaggagg atggcataac atggacgtta 120

gatcagtctt ccgaggtcct tggttccggt aagactctta ctatccaggt gaaggagttc 180

ggcgatgccg gccagtacac ttgccataaa ggcggtgaag ttctaagcca ctctctactg 240

cttttgcaca agaaggaaga tggaatatgg tccaccgaca tcttgaagga ccagaaagaa 300

ccaaaaaata agacattttt gaggtgtgag gcaaaaaatt attcgggacg cttcacctgc 360

tggtggttga cgacgatttc aaccgacctc accttctcag taaagagttc gagaggtagt 420

tccgatcccc aaggtgtgac atgtggcgct gcgactctaa gcgctgaacg cgtaagaggt 480

gataacaaag agtacgaata cagtgtggaa tgccaagaag atagcgcgtg tccagccgca 540

gaagaatctt taccaataga ggttatggtt gatgccgttc acaaattgaa atatgagaat 600

tacacctcaa gctttttcat tcgagacata ataaagcccg accctcctaa gaatcttcag 660

ttaaaaccgc tgaagaacag tagacaagtt gaggttagct gggaatatcc tgatacctgg 720

tcaacgccgc actcgtattt ctccctgact ttctgtgttc aggttcaagg aaaatctaaa 780

agggagaaga aagaccgtgt tttcaccgac aagacatctg ccacagtcat atgtaggaag 840

aacgcttcaa tcagcgtgcg agcgcaggac cgatactaca gctctagttg gtccgaatgg 900

gccagcgtac catgctct 918

<210> 54
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of M1

<400> 54
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ggcgagatgg tggtactgac ctgcgacact cccgaggaag acggcattac ctggaccttg 120

gaccagagca gcgaggttct gggctccgga aaaaccttga caatccaagt gaaagaattc 180

ggcgacgctg gccagtacac ctgccacaag ggcggcgagg tgctgtccca cagcctgctg 240

ctgctgcata agaaagaaga cgggatttgg agcaccgata tactgaagga tcagaaggag 300

cccaagaaca agaccttcct gaggtgcgag gccaaaaatt acagcggcag attcacctgc 360

tggtggctga ccaccattag cacagacctg actttcagcg taaagtcttc aaggggcagc 420

tcagaccccc agggagtaac ttgcggagcg gcaacgttgt ctgccgagcg ggtcagaggc 480

gacaataagg agtacgagta ttcagtagag tgtcaggaag atagcgcctg tcccgccgcg 540

gaggagagcc tccccatcga ggtgatggtg gacgccgtgc acaagttaaa gtacgagaat 600

tacaccagct catttttat cagagacatt atcaagccgg acccccccgaa gaacttacag 660

cttaaacccc taaagaacag caggcaggtt gaggtcagct gggaatatcc tgacacctgg 720

tcaacccccc acagctactt ctcccttact ttctgtgtgc aagtgcaggg caagagcaag 780

agagaaaaga aggaccgggt gtttaccgac aagactagcg ccaccgtgat ttgcagaaag 840

aacgccagca ttagtgtgag agcccaggac aggtattact ccagctcatg gtctgagtgg 900

gctagtgtgc cttgctct 918

<210> 55
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of M2

<400> 55
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ggcgagatgg tggtactcac ctgcgacaca cctgaggaag acggcatcac ctggaccctc 120

gatcagagca gcgaggttct gggaagcggc aaaaccctga ccatccaagt gaaagagttt 180

ggcgacgccg gtcagtacac ctgccacaag ggaggcgagg tcctgtctca ctctctgctg 240

ctgctccata agaaggagga cggtatttgg agcactgaca tcttgaagga tcaaaaagag 300

ccaaagaata aaacgttcct gaggtgcgaa gctaagaatt actccgggcg ttttacgtgc 360

tggtggctga ccacgatcag caccgatctg accttcagcg tgaagagcag ccggggcagc 420

agcgaccccc aaggcgtgac ttgcggcgct gcgaccctga gcgctgagcg tgtgcgcggc 480

gacaacaagg agtatgagta ttcagtggag tgtcaggagg actccgcctg tcccgcggcc 540

gaagagagtc tgcctattga ggtgatggtg gacgccgtgc acaagctgaa gtacgagaac 600

tacacatcgt cattctttat ccgcgacatc ataaagcccg acccccccaa gaacctgcag 660

ctgaagcctc tcaagaattc ccggcaagtg gaggtgagct gggagtaccc tgatacctgg 720

tctacccctc acagctactt tagcctgacc ttctgcgtcc aggtgcaagg aaagtcgaag 780

cgcgagaaga aagatagagt cttcaccgat aaaaccagtg ccaccgtgat ttgccgcaaa 840

aacgcctcca tcagcgtgcg ggctcaggat agatactact ctagcagctg gagcgaatgg 900

gcctcagttc cttgcagc 918

<210> 56
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of M3

<400> 56
atttgggagc tcaagaagga cgtgtacgtg gtggaacttg actggtaccc ggacgcgccc 60

ggggaaatgg tggtgctaac ctgtgacacc cccgaagagg acggcatcac ctggaccctg 120

gaccagagca gtgaggtgct aggtagtggc aaaacgttaa ccatccaggt caaggagttc 180

ggcgacgccg ggcaatacac ctgtcacaag gggggggagg tactatccca ctccctgctg 240

ctcctgcaca agaaagagga cgggatctgg agcaccgaca ttctgaaaga ccaaaaggag 300

cccaaaaaca aaaccttcct tagatgtgaa gccaagaact acagcggccg tttcacctgc 360

tggtggctga ccaccatatc tacggacctt acctttcgg tgaagagcag caggggggagt 420

tccgacccgc aaggcgtaac ttgcggagcc gcaaccctga gcgccgagag agtgcgcggc 480

gacaacaagg agtacgagta tagcgtggag tgccaagagg acagcgcatg cccagccgcc 540

gaagagagcc tgccaataga ggtcatggta gacgccgtgc acaagctaaa atatgaaaac 600

tacaccagca gctttttcat cagggatatc atcaaacccg acccaccaaa aaacttacag 660

cttaagcctc tgaaaaacag cagacaagtt gaggtcagct gggagtaccc cgacacttgg 720

agcacacccc actcctattt cagtttgaca ttctgcgtgc aggtgcaggg taaaagcaag 780

agagaaaaga aggacagagt gttcacagat aagacctcag ccacagtgat ctgccgtaag 840

aatgccagca tcagcgtccg ggctcaggac aggtactact cttcctcatg gagcgagtgg 900

gcctctgtcc cctgcagc 918

<210> 57
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of H1

<400> 57
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ggtgaaatgg tggttctgac ctgcgacaca ccagaggagg acggcatcac ctggaccctg 120

gaccagtcca gcgaggtcct gggctctggc aagaccctga ccatccaggt taaggaattt 180

ggcgacgccg gccagtacac ctgccacaaa ggcggcgagg tcctttcgca cagtctgctg 240

ctgctgcata aaaaggagga cggcatttgg agcaccgaca ttctgaagga tcagaaagag 300

cccaagaaca agacctttct gagatgtgag gccaaaaact actctggacg cttcacctgt 360

tggtggctga ccaccatcag cacagacctg accttctcgg tgaagtctag taggggcagc 420

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tacaccagta gctttttcat cagagatatc attaaacccg accctcccaa gaacctgcag 660

ctgaagccct taaagaacag ccggcaggtg gaagtgtcat gggagtaccc agacacctgg 720

agcactccgc acagctactt cagcctgacc ttctgcgttc aggtgcaggg aaaaagcaag 780

agagagaaga aagacagagt gttcaccgac aagaccagcg caaccgtgat ctgtagaaag 840

aacgcctcga tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagtgtac cttgcagc   918

<210> 58
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of H2

<400> 58
atttgggagc tgaagaagga cgtgtacgtg gtggagctgg attggtatcc agacgccccc 60

ggcgagatgg tcgtgttgac ctgcgatact cccgaggagg acggaatcac ctggacactt 120

gaccagagca gcgaggtgct gggcagcggg aagaccctga ctatccaggt gaaggagttt 180

ggcgatgccg gacagtacac ctgccacaag ggcggcgagg tgttatctca tagcctgctg 240

ctgctgcaca aaaaggagga cgggatctgg agcactgaca tcctgaagga ccagaaggag 300

cccaaaaaca agaccttcct gcgttgcgag gccaagaact acagcgggag attcacctgt 360

tggtggctga ccactatcag cactgaccta accttcagcg tgaagagcag ccggggaagc 420

tctgaccccc agggggtgac atgcggcgcc gccacactga gcgccgagag ggtgagaggg 480

gacaataagg aatacgagta tagcgtggag tgtcaggaag attccgcctg ccccgccgcc 540

gaggagagcc tgcctatcga ggtcatggtg gacgccgtcc ataaactgaa gtacgaaaac 600

tatacttcaa gcttcttcat cagagacatc ataaagcccg acccccccaa gaacctgcag 660

ctaaagcccc tgaagaacag cagacaggtc gaagtgagct gggagtaccc cgatacctgg 720

agcaccccgc acagctactt cagcctgacc ttttgcgtcc aggtgcaggg caagagcaag 780

agagagaaga aggacagggt gttcactgac aagacaagcg ccactgttat ctgcagaaag 840

aacgccagta tcagcgtgcg cgcccaagac aggtattact ccagcagctg gtctgaatgg 900

gccagcgtgc cttgcagc 918

<210> 59
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of H3

<400> 59
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gaccagagca gcgaagtgtt gggcagcggc aagaccctga ccatccaagt gaaggaattc 180

ggcgacgcgg gccagtatac ttgccacaag ggcggggagg ttctgagcca cagcctgctg 240

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ccaaagaaca agaccttcct aagatgcgag gccaagaact actcaggtcg tttcacctgc 360

tggtggctga ccacaatctc caccgacctg accttcagcg tgaagagcag ccgcggcagt 420

agcgacccac agggcgtgac ctgcggggcc gccactctga gcgccgagag agtgcgcggc 480

gataataagg aatacgagta cagcgtggag tgccaggaag actcagcctg ccccgccgca 540

gaagaaagtc tgccaataga ggtgatggtt gacgccgtgc acaagctaaa gtacgagaac 600

tacaccagca gcttctttat ccgggacatc atcaagccag atccccccaa gaacctgcag 660

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agcacccccc atagctactt ctcactgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggatagggt attcacggac aagacctcag ccaccgtgat ctgccgaaag 840

aacgccagca tcagcgtgag agcccaggac agatactata gctcctcgtg gagcgagtgg 900

gccagcgtac cttgcagc 918

<210> 60
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of CO

<400> 60
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ggcgagatgg tggtgctgac ctgcgacacc cccgaggagg acggcatcac ctggaccctg 120

gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttc 180

ggcgacgccg gccagtacac ctgccacaag ggcggcgagg tgctgagcca cagcctgctg 240

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agcacccccc acagctactt cagcctgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggacagagt gttcaccgac aagaccagcg ccaccgtgat ctgcagaaag 840

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gccagcgtgc cctgcagc 918

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<220>
<223> IL12b of CP

<400> 61
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gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttt 180

ggagatgctg gccagtacac ctgccacaag ggcggggagg tgctgagcca cagcctgctg 240

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ctgaagcccc tgaagaacag ccggcaggtg gaggtgtcct gggagtaccc agacacctgg 720

agcacccccc acagctactt cagcctgacc ttctgtgtgc aggtgcaggg caagagcaag 780

cgggagaaga aggacagagt cttcacagac aagaccagcg ccaccgtcat ctgcaggaag 840

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gcctctgtgc cctgcagc 918

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<213> Artificial Sequence

<220>
<223> IL12b of vH1

<400> 62
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ggcgagatgg tggtgctgac ctgcgacacc cccgaggagg acgggatcac ctggaccctg 120

gatcagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttt 180

ggtgacgccg gccagtacac ctgccacaag ggcggcgagg tgctgagcca ctcactgctg 240

ctgctgcaca agaaggagga cggcatctgg agcaccgaca ttctgaagga tcagaaggag 300

cccaagaaca agaccttcct gagatgcgag gccaagaact acagcggcag attcacctgt 360

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agcacccccc acagctactt cagcctgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggacagagt gttcaccgac aaaaccagcg ccaccgtgat ctgcagaaaa 840

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gccagcgtgc cctgcagc 918

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<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of vH2

<400> 63
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ctgaagcccc tgaaaaacag cagacaggtg gaggtgagct gggagtaccc cgacacctgg 720

agcacccccc acagctactt cagcctgacc ttctgcgtgc aggtgcaggg aaaaagcaag 780

agagagaaga aggacagagt gttcaccgac aagaccagcg ccaccgtgat ctgcagaaag 840

aacgccagca tctccgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagcgtgc cctgtagc 918

<210> 64
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of vH3

<400> 64
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ggcgagatgg tcgtgctgac ctgcgacacc cccgaggagg acggcatcac ctggaccctg 120

gaccagtcta gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttc 180

ggcgacgccg gccagtacac ctgccacaag ggcggcgagg tgctgagcca cagcctgctg 240

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cctaagaaca agaccttcct gagatgtgag gccaagaact acagcggcag attcacctgc 360

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ctgaagccac tgaagaacag cagacaggtg gaggtgagct gggagtaccc cgacacctgg 720

agcacccccc acagctactt cagcctgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggaccgggt gttcaccgac aagaccagcg ccactgtgat ctgcagaaag 840

aacgccagca tcagcgtgag agcccaggac agatactaca gctccagctg gtcagagtgg 900

gccagcgtgc cctgcagc 918

<210> 65
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of A1

<400> 65
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ggtgaaatgg tggttctgac ctgcgacaca ccagaggagg acggcatcac ctggaccctg 120

gaccagtcca gcgaggtcct gggatctggc aagaccctga ccatccaggt taaggaattt 180

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ctgctgcata aaaaggagga cggcatttgg agcaccgaca ttctgaagga tcagaaagag 300

cccaagaaca agacctttct gagatgtgag gccaaaaact actctggacg cttcacctgt 360

tggtggctga ccaccatcag cacagacctg accttctcgg tgaagtctag taggggcagc 420

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tacaccagta gctttttcat cagagatatc attaaacccg accctcccaa gaacctgcag 660

ctgaagccct taaagaacag ccggcaggtg gaagtgtcat gggagtaccc agacacctgg 720

agcactccgc acagctactt cagcctgacc ttctgcgttc aggtgcaggg aaaaagcaag 780

agagagaaga aagacagagt gttcaccgac aagaccagcg caaccgtgat ctgtagaaag 840

aacgcctcga tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagtgtac cttgcagc 918

<210> 66
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<212> DNA
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<220>
<223> IL12b of A2

<400> 66
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ggcgagatgg tcgtgctgac ctgtgacacc cctgaggagg acggaatcac atggaccctg 120

gaccagagca gcgaagtgtt gggcagcggc aagaccctga ccatccaagt gaaggaattc 180

ggcgacgcgg gccagtatac ttgccacaag ggcggggagg ttctgagcca cagcctgctg 240

ctgctccaca agaaagagga tggcatctgg tctaccgaca tcctgaagga ccaaaaggag 300

ccaaagaaca agaccttcct aagatgcgag gccaagaact actcaggtcg tttcacctgc 360

tggtggctga ccacaatctc caccgacctg accttcagcg tgaaaagcag ccgcggcagt 420

agcgacccac agggcgtgac ctgcggggcc gccactctga gcgccgagag agtgcgcggc 480

gataataagg aatacgagta cagcgtggag tgccaggaag actcagcctg ccccgccgca 540

gaagaaagtc tgccaataga ggtgatggtt gacgccgtgc acaagctaaa gtacgagaac 600

tacaccagca gcttctttat ccgggacatc atcaagccag atccccccaa gaacctgcag 660

cttaagcccc tgaagaacag cagacaggtg gaggtgtcat gggaataccc cgacacctgg 720

agcacccccc atagctactt ctcactgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggatagggt attcacggac aagacctcag ccaccgtgat ctgccgaaag 840

aacgccagca tcagcgtgag agcccaggac agatactata gctcctcgtg gagcgagtgg 900

gccagcgtac cttgcagc 918

<210> 67
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of A3

<400> 67
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ggcgagatgg tggtgctgac ctgcgacacc cccgaggagg acggcatcac ctggaccctg 120

gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttc 180

ggcgacgccg gccagtacac ctgccacaag ggcggcgagg tgctgagcca cagcctgctg 240

ctgctgcaca agaaggagga cggcatctgg agcaccgaca tcctgaagga ccagaaggag 300

cccaagaaca agaccttcct gagatgcgag gccaagaact acagcggcag attcacctgc 360

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ctgaagcccc tgaagaacag cagacaggtg gaggtgagct gggagtaccc cgacacctgg 720

agcacccccc acagctactt cagcctgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggacagagt gttcaccgac aagaccagcg ccaccgtgat ctgcagaaag 840

aacgccagca tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagcgtgc cctgcagc 918

<210> 68
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of A4

<400> 68
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ggagagatgg tggtgctgac ctgtgacacc ccagaggagg atggcatcac ctggaccctg 120

gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttt 180

ggagatgctg gccagtacac ctgccacaag ggcggggagg tgctgagcca cagcctgctg 240

ctgctgcaca agaaggagga tggcatctgg agcacagaca tcctgaagga ccagaaggag 300

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agcacccccc acagctactt cagcctgacc ttctgtgtgc aggtgcaggg caagagcaag 780

cgggagaaga aggacagagt cttcacagac aagaccagcg ccaccgtcat ctgcaggaag 840

aatgccagca tctctgtgcg ggcccaggac cgctactaca gcagctcctg gagcgagtgg 900

gcctctgtgc cctgcagc 918

<210> 69
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of B1

<400> 69
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ggtgaaatgg tggttctgac ctgcgacaca ccagaggagg acggcatcac ctggaccctg 120

gaccagtcca gcgaggtcct gggatctggc aagaccctga ccatccaggt taaggaattt 180

ggcgacgccg gccagtacac ctgccacaaa ggcggcgagg tcctttcgca cagtctgctg 240

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cccaagaaca agacctttct gagatgtgag gccaaaaact actctggacg cttcacctgt 360

tggtggctga ccaccatcag cacagacctg accttctcgg tgaagtctag taggggcagc 420

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ctgaagccct taaagaacag ccggcaggtg gaagtgtcat gggagtaccc agacacctgg 720

agcactccgc acagctactt cagcctgacc ttctgcgttc aggtgcaggg aaaaagcaag 780

agagagaaga aagacagagt gttcaccgac aagaccagcg caaccgtgat ctgtagaaag 840

aacgcctcga tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagtgtac cttgcagc 918

<210> 70
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of B2

<400> 70
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ggcgagatgg tcgtgctgac ctgtgacacc cctgaggagg acggaatcac atggaccctg 120

gaccagagca gcgaagtgtt gggcagcggc aagaccctga ccatccaagt gaaggaattc 180

ggcgacgcgg gccagtatac ttgccacaag ggcggggagg ttctgagcca cagcctgctg 240

ctgctccaca agaaagagga tggcatctgg tctaccgaca tcctgaagga ccaaaaggag 300

ccaaagaaca agaccttcct aagatgcgag gccaagaact actcaggtcg tttcacctgc 360

tggtggctga ccacaatctc caccgacctg accttcagcg tgaaaagcag ccgcggcagt 420

agcgacccac agggcgtgac ctgcggggcc gccactctga gcgccgagag agtgcgcggc 480

gataataagg aatacgagta cagcgtggag tgccaggaag actcagcctg ccccgccgca 540

gaagaaagtc tgccaataga ggtgatggtt gacgccgtgc acaagctaaa gtacgagaac 600

tacaccagca gcttctttat ccgggacatc atcaagccag atccccccaa gaacctgcag 660

cttaagcccc tgaagaacag cagacaggtg gaggtgtcat gggaataccc cgacacctgg 720

agcacccccc atagctactt ctcactgacc ttctgcgtgc aggtgcaggg caagagcaag 780

agagagaaga aggatagggt attcacggac aagacctcag ccaccgtgat ctgccgaaag 840

aacgccagca tcagcgtgag agcccaggac agatactata gctcctcgtg gagcgagtgg 900

gccagcgtac cttgcagc 918

<210> 71
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of B3

<400> 71
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ggcgagatgg tggtgctgac ctgcgacacc cccgaggagg acggcatcac ctggaccctg 120

gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttc 180

ggcgacgccg gccagtacac ctgccacaag ggcggcgagg tgctgagcca cagcctgctg 240

ctgctgcaca agaaggagga cggcatctgg agcaccgaca tcctgaagga ccagaaggag 300

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agagagaaga aggacagagt gttcaccgac aagaccagcg ccaccgtgat ctgcagaaag 840

aacgccagca tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagcgtgc cctgcagc   918

<210> 72
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of B4

<400> 72
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ggagagatgg tggtgctgac ctgtgacacc ccagaggagg atggcatcac ctggaccctg 120

gaccagagca gcgaggtgct gggcagcggc aagaccctga ccatccaggt gaaggagttt 180

ggagatgctg gccagtacac ctgccacaag ggcggggagg tgctgagcca cagcctgctg 240

ctgctgcaca agaaggagga tggcatctgg agcacagaca tcctgaagga ccagaaggag 300

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agcacccccc acagctactt cagcctgacc ttctgtgtgc aggtgcaggg caagagcaag 780

cgggagaaga aggacagagt cttcacagac aagaccagcg ccaccgtcat ctgcaggaag 840

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gcctctgtgc cctgcagc 918

<210> 73
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of C1

<400> 73
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ggcgagatgg tggtactgac ctgcgacact cccgaggaag acggcattac ctggaccttg 120

gaccagagca gcgaggttct gggctccgga aaaaccttga caatccaagt gaaagaattc 180

ggcgacgctg gccagtacac ctgccacaag ggcggcgagg tgctgtccca cagcctgctg 240

ctgctgcata agaaagaaga cgggatttgg agcaccgata tactgaagga tcagaaggag 300

cccaagaaca agaccttcct gaggtgcgag gccaaaaatt acagcggcag attcacctgc 360

tggtggctga ccaccattag cacagacctg actttcagcg taaagtcttc aaggggcagc 420

tcagaccccc agggagtaac ttgcggagcg gcaacgttgt ctgccgagcg ggtcagaggc 480

gacaataagg agtacgagta ttcagtagag tgtcaggaag atagcgcctg tcccgccgcg 540

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tcaacccccc acagctactt ctcccttact ttctgtgtgc aagtgcaggg caagagcaag 780

agagaaaaga aggaccgggt gtttaccgac aagactagcg ccaccgtgat ttgcagaaag 840

aacgccagca ttagtgtgag agcccaggac aggtattact ccagctcatg gtctgagtgg 900

gctagtgtgc cttgctct 918

<210> 74
<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of C2

<400> 74
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ggtgaaatgg tggttctgac ctgcgacaca ccagaggagg acggcatcac ctggaccctg 120

gaccagtcca gcgaggtcct gggatctggc aagaccctga ccatccaggt taaggaattt 180

ggcgacgccg gccagtacac ctgccacaaa ggcggcgagg tcctttcgca cagtctgctg 240

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cccaagaaca agacctttct gagatgtgag gccaaaaact actctggacg cttcacctgt 360

tggtggctga ccaccatcag cacagacctg accttctcgg tgaagtctag taggggcagc 420

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tacaccagta gctttttcat cagagatatc attaaacccg accctcccaa gaacctgcag 660

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agcactccgc acagctactt cagcctgacc ttctgcgttc aggtgcaggg aaaaagcaag 780

agagagaaga aagacagagt gttcaccgac aagaccagcg caaccgtgat ctgtagaaag 840

aacgcctcga tcagcgtgag agcccaggac agatactaca gcagcagctg gagcgagtgg 900

gccagtgtac cttgcagc 918

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<211> 918
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12b of C3

<400> 75
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ccaaagaaca agaccttcct aagatgcgag gccaagaact actcaggtcg tttcacctgc 360

tggtggctga ccacaatctc caccgacctg accttcagcg tgaaaagcag ccgcggcagt 420

agcgacccac agggcgtgac ctgcggggcc gccactctga gcgccgagag agtgcgcggc 480

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tacaccagca gcttctttat ccgggacatc atcaagccag atccccccaa gaacctgcag 660

cttaagcccc tgaagaacag cagacaggtg gaggtgtcat gggaataccc cgacacctgg 720

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agagagaaga aggatagggt attcacggac aagacctcag ccaccgtgat ctgccgaaag 840

aacgccagca tcagcgtgag agcccaggac agatactata gctcctcgtg gagcgagtgg 900

gccagcgtac cttgcagc 918

<210> 76
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of L1

<400> 76
gggggttctg gtgggggcag tggaggagga tcaggtggcg gcagt 45

<210> 77
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of L2

<400> 77
ggcggttcgg gcggagggtc cggcggtggt agcggaggcg ggagc 45

<210> 78
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of L3

<400> 78
ggcggttccg gcgggggctc gggggggcggg agcggtggag gcagc 45

<210> 79
<211> 45
<212> DNA

<213> Artificial Sequence

<220>
<223> GS Linker of M1

<400> 79
ggcggcagcg gcggcgggag cggcggaggc tccgggggag gtagc 45

<210> 80
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of M2

<400> 80
ggcggcagcg gtggaggaag cggcggtggc agtgggggcg ggagc 45

<210> 81
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of M3

<400> 81
ggcggcagcg gcggtggcag cggcggcggt tctggcggcg gttca 45

<210> 82
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of H1

<400> 82
ggtggcagcg gcggcggctc cggcggcggg agtggcggcg gcagc 45

<210> 83
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of H2

<400> 83
gggggggagcg gcggtggcag cgggggcggc agcggcgggg gcagc   45

<210> 84
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of H3

<400> 84
ggcgggagcg gcggcggcag cggcggtggc agtggcgggg gcagc   45

<210> 85
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of CO

<400> 85
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc   45

<210> 86
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of CP

<400> 86
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc   45

<210> 87
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of vH1

<400> 87
ggcggctcag gcggcggctc aggcggcggc agcggcggcg gcagc   45

<210> 88
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of vH2

<400> 88
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc   45

<210> 89
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of vH3

<400> 89
ggcggcagcg gtggcgggag cggcggcggg agcggcggcg gaagc   45

<210> 90
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of A1

<400> 90
ggtggaagcg gcggaggctc tggcggaggg agtggcggag gcagc   45

<210> 91
<211> 45
<212> DNA
<213> Artificial Sequence

<220>

<223> GS Linker of A2

<400> 91
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<210> 92
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of A3

<400> 92
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc 45

<210> 93
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of A4

<400> 93
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc 45

<210> 94
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of B1

<400> 94
ggtggaagcg gcggaggctc tggcggaggg agtggcggag gcagc 45

<210> 95
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of B2

<400> 95
ggcgggagcg gcggcggcag cggaggtggc agtggcggag gcagc 45

<210> 96
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of B3

<400> 96
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc 45

<210> 97
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of B4

<400> 97
ggcggcagcg gcggcggcag cggcggcggc agcggcggcg gcagc 45

<210> 98
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of C1

<400> 98
ggaggcagcg gtggcgggag cggcggaggc tccgggggag gtagc 45

<210> 99
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of C2

<400> 99
ggtggaagcg gcggaggctc tggcggaggg agtggcggag gcagc 45

<210> 100
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of C3

<400> 100
ggcgggagcg gcggcggcag cggaggtggc agtggcggag gcagc 45

<210> 101
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of L1

<400> 101
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aacctcttaa gggccgtgtc aaatatgcta cagaaggcga gacagacttt agaattctac 120

ccttgtacaa gcgaggagat tgaccacgag gacatcacca aagataagac gagcaccgtc 180

gaggcttgcc tgcctctaga actaacaaaa aatgaatcat gcttgaactc gagggagacc 240

agtttcatta ctaacggttc atgtcttgca tcgaggaaga cctcattcat gatggccctg 300

tgcctctcgt ccatttatga agacctaaag atgtaccagg tagagtttaa gaccatgaac 360

gccaagctcc tcatggatcc aaaacggcaa atattcttag atcagaatat gctcgctgtt 420

atcgacgaac tcatgcaggc gcttaacttc aactcagaaa ccgttcccca aaagtcgagt 480

ctagaagaac cggactttta taagaccaaa attaaactgt gtatactact tcacgccttc 540

aggataagag cagtgacgat tgacagggtg atgtcctact tgaatgcatc a 591

<210> 102
<211> 591
<212> DNA

<213> Artificial Sequence

<220>
<223> IL12a of L2

<400> 102
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aacttattac gtgctgttag caacatgttg caaaaggccc gtcaaaccct cgagttttac 120

ccctgtacta gtgaagaaat cgaccacgaa gacataacaa aagacaagac aagcacagtt 180

gaggcatgct tacccctgga gttaacaaag aacgagagct gtctgaactc tcgagagacg 240

agcttcatca ccaatgggag ttgccttgct tctcgaaaaa cgtcgttcat gatggccctg 300

tgcctgtcgt ctatctatga ggatctgaaa atgtatcagg ttgaattcaa gacaatgaat 360

gccaaactac tcatggatcc aaaacggcag atattcctcg atcagaatat gctcgcagtt 420

attgacgaac taatgcaggc tctgaatttt aacagcgaga ccgttcctca gaagtcaagt 480

ttggaagaac ctgacttcta caaaactaaa ataaaattat gcatcttact gcatgctttc 540

agaattagag ctgtcactat tgatcgagtg atgtcatact tgaatgcttc c 591

<210> 103
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of L3

<400> 103
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aacttattac gcgccgtttc caatatgtta cagaaggcca gacagacatt agagttttat 120

ccttgcacat cggaggagat cgaccatgaa gatatcacaa aagataaaac atccaccgtt 180

gaggcctgcc tgccacttga acttactaaa aacgagagct gcctgaatag ccgggaaact 240

tctttcatca ctaatggatc gtgtctagca agccgaaaaa ccagcttcat gatggctttg 300

tgcctctcgt ccatctatga agacctgaaa atgtatcaag tagaatttaa aacgatgaat 360

gccaaactgc ttatggatcc caaacgccag atatttctag accagaatat gctggccgtc 420

attgatgagc taatgcaggc tctcaatttt aatagcgaaa cagtgcccca aaaaagctct 480

ttggaagagc cggattttta caaaaccaag attaagctat gtatcctgct gcatgctttc 540

agaattcgag ctgttacaat tgatcgggtt atgagctact taaacgcctc g 591

<210> 104
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of M1

<400> 104
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aacctgctga gggccgtatc caatatgctg cagaaagcca gacagacctt agagttctat 120

ccctgtacaa gcgaggagat agatcacgag gatattacga aggacaaaac ttctactgtt 180

gaggcgtgtc ttccattaga gctgaccaag aacgaaagct gtctgaatag cagagagact 240

tcatttatca ccaatgggag ttgcttggct agcagaaaga ccagcttcat gatggccctt 300

tgcttgtctt cgatatacga agatcttaag atgtatcaag tggaatttaa gacgatgaac 360

gccaagctgc ttatggatcc caagcgccaa atcttcctgg atcagaacat gttggccgtg 420

attgacgagc tgatgcaagc cctgaatttc aactccgaga ccgtgcctca gaagagcagc 480

ctcgaggagc ccgacttcta caaaacaaag atcaaactct gcatccttct gcacgccttc 540

agaattagag ccgtgaccat cgacagagtt atgagctacc tgaatgccag c 591

<210> 105
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of M2

<400> 105
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aacctgctgc gggcggtgtc taacatgctg cagaaggcta ggcagacctt ggaattctat 120

ccctgcacaa gcgaggaaat agaccatgag gacatcacca aggataagac cagcacggtc 180

gaagcttgcc tgccactgga actgacaaaa aacgagagtt gcctgaactc ccgcgagaca 240

tccttcatca caaacggcag ctgcctggct agcaggaaga ccagcttcat gatggccctg 300

tgcctgtctt ccatctacga ggacctgaaa atgtaccaag tggagttcaa gactatgaac 360

gccaagctgc taatggatcc caagcgacag atctttctag accagaacat gctggccgtc 420

attgacgagc tgatgcaggc actcaatttt aactcagaga ccgtgccaca gaagtccagc 480

ctggaggagc ctgacttcta taagaccaag attaagctgt gcatcctgct gcatgccttc 540

cgaataagag ccgtgaccat tgaccgagtg atgtcatact tgaacgcaag c 591

<210> 106
<211> 591
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<213> Artificial Sequence

<220>
<223> IL12a of M3

<400> 106
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ccatgcacct cggaagaaat cgatcacgag gacatcacca aggacaagac tagcaccgtc 180

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tgcttaagca gcatctacga ggatctgaag atgtaccagg tagagttcaa gaccatgaat 360

gccaagctgc tgatggaccc caagagacaa atcttcctgg accagaacat gctggccgta 420

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ctggaggagc ccgactttta taagacgaaa ataaagttgt gcatccttct tcacgctttc 540

cggattagag ccgtgaccat cgatagagtg atgtcatacc tgaacgcatc g 591

<210> 107
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of H1

<400> 107
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ccctgtacct cagaggagat cgatcatgag gacattacta aggacaagac cagcaccgtg 180

gaagcctgcc tgcccctaga gctaaccaag aacgagagct gcctgaactc tagagagaca 240

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gccaagctgc tgatggaccc aaagagacag atcttccttg accagaacat gctggccgtt 420

atcgatgagc tgatgcaggc cctgaacttc aacagcgaga ccgtgcccca gaagagcagc 480

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cgcattagag ccgtgaccat cgatagggtg atgagctacc tgaacgccag c 591

<210> 108
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of H2

<400> 108
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gaggcctgcc tccccctgga gctgaccaag aacgagtcct gcttgaattc aagagagacc 240

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tgcttgtcta gcatctatga ggatctgaag atgtaccagg tcgagttcaa gactatgaac 360

gccaagctgc tgatggaccc caaaagacag atcttcctgg accagaacat gctggccgtc 420

atcgacgagc tgatgcaggc ccttaatttc aatagcgaga cagtgcccca gaaatcttct 480

ctggaggagc ccgattttta caaaaccaag atcaaactat gcatcctgtt gcacgccttc 540

cggatccgcg ccgtgaccat cgacagagta atgtcctacc tgaacgccag c 591

<210> 109
<211> 591
<212> DNA
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<223> IL12a of H3

<400> 109
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ccctgcacaa gcgaggagat cgaccacgag gacatcacta aggacaagac cagcacagtg 180

gaagcctgcc tcccgctgga gctgactaag aacgagagct gtctgaacag cagggagacc 240

agcttcatca ccaacggcag ctgcctggcg agcagaaaaa cctcctttat gatggcgctc 300

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gccaagctgc ttatggaccc taagagacag attttcctgg atcagaacat gctggccgtg 420

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ctggaggagc ccgactttta caagaccaag atcaagttgt gcatcctcct gcacgccttc 540

agaatcagag cggtgacgat cgacagagtc atgagctacc tcaacgctag c 591

<210> 110
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of CO

<400> 110
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ccctgcacca gcgaggagat cgaccacgag gacatcacca aggacaagac cagcaccgtg 180

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agcttcatca ccaacggcag ctgcctggcc agcagaaaga ccagcttcat gatggccctg 300

tgcctgagca gcatctacga ggacctgaag atgtaccagg tggagttcaa gaccatgaac 360

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ctggaggagc ccgacttcta caagaccaag atcaagctgt gcatcctgct gcacgccttc 540

agaatcagag ccgtgaccat cgacagagtg atgagctacc tgaacgccag c 591

<210> 111
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of CP

<400> 111
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tgcctgagca gcatctatga ggacctgaag atgtaccagg tggagttcaa gaccatgaat 360

gccaagctgc tgatggaccc caagaggcag atcttcctgg accagaacat gctggccgtg 420

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ctggaggagc cagacttcta caagaccaag atcaagctgt gcatcctgct gcacgccttc 540

cgcatccggg ctgtgaccat cgacagagtg atgagctacc tgaatgccag c 591

<210> 112
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of vH1

<400> 112
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aatctgctga gagccgtgag caacatgctg cagaaggcca gacagacgct cgagttctac 120

ccctgcacca gcgaggagat tgaccacgag gacatcacca aggacaagac cagcaccgtg 180

gaggcctgcc tgcccctcga gctgaccaag aacgagagct gcctgaacag cagagagacc 240

agcttcatca ccaacggcag ctgcctggcc agcagaaaga ccagcttcat gatggccctg 300

tgcctgagca gcatctacga ggacctgaag atgtaccagg tggagttcaa gacaatgaac 360

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agaatcagag ccgtgaccat cgacagagtg atgagctacc tgaacgccag c 591

<210> 113
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of vH2

<400> 113
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tgcctgtcta gcatctacga ggatctgaag atgtaccagg tggagttcaa gaccatgaac 360

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ctggaggagc ccgacttcta caagaccaag atcaagctgt gcatcctgct gcacgccttc 540

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ccctgcacca gcgaggagat cgatcacgag gacatcacca aggacaagac cagtaccgtg 180

gaggcctgcc tgcccctgga gctgaccaag aacgagagct gcctgaacag cagagagacc 240

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tgcctgagca gcatctacga ggacttgaag atgtaccagg tggagttcaa gaccatgaac 360

gccaagcttc tgatggaccc caagagacag atctttctgg accagaacat gctggccgtg 420

atcgatgaac tgatgcaggc cctgaacttc aacagcgaga ccgtgcccca gaagagcagt 480

ctggaggagc ccgacttcta caagactaag atcaagctgt gcatcctgct gcacgccttc 540

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<220>
<223> IL12a of A1

<400> 115
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gaagcctgcc tgcccctaga gctaaccaag aacgagagct gcctgaactc tagagagaca 240

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gccaagctgc tgatggaccc aaagagacag atcttccttg accagaacat gctggccgtt 420

atcgatgagc tgatgcaggc cctgaacttc aacagcgaga ccgtgcccca gaaaagcagc 480

ctggaggaac ccgacttcta caaaaccaag atcaagctgt gcattctgct gcatgccttc 540

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<212> DNA
<213> Artificial Sequence

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gccaagctgc ttatggaccc taagagacag attttcctgg atcagaacat gctggccgtg 420

attgatgaat taatgcaggc gctgaacttt aacagcgaga ccgtgcccca gaaaagcagc 480

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agaatcagag cggtgacgat cgacagagtc atgagctacc tcaacgct 588

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<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of A3

<400> 117
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gaggcctgcc tgcccctgga gctgaccaag aacgagagct gcctgaacag cagagagacc 240

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tgcctgagca gcatctacga ggacctgaag atgtaccagg tggagttcaa gaccatgaac 360

gccaagctgc tgatggaccc caagagacag atcttcctgg accagaacat gctggccgtg 420

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ctggaggagc ccgacttcta caagaccaag atcaagctgt gcatcctgct gcacgccttc 540

agaatcagag ccgtgaccat cgacagagtg atgagctacc tgaacgccag c 591

<210> 118
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of A4

<400> 118
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ccctgcacca gcgaggagat tgaccacgag gacatcacca aggacaagac cagcacagtg 180

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agcttcatca ccaacggcag ctgcctggcc agcaggaaga ccagcttcat gatggccctg 300

tgcctgagca gcatctatga ggacctgaag atgtaccagg tggagttcaa gaccatgaat 360

gccaagctgc tgatggaccc caagaggcag atcttcctgg accagaacat gctggccgtg 420

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<223> IL12a of B1

<400> 119
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ccctgtacct cagaggagat cgatcatgag gacattacta aggacaagac cagcaccgtg 180

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agcttcatca cgaacggctc atgcctggcc agtaggaaaa ccagcttcat gatggctctg 300

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gccaagctgc tgatggaccc aaagagacag atcttccttg accagaacat gctggccgtt 420

atcgatgagc tgatgcaggc cctgaacttc aacagcgaga ccgtgcccca gaaaagcagc 480

ctggaggaac ccgacttcta caaaaccaag atcaagctgt gcattctgct gcatgccttc 540

cgcattagag ccgtgaccat cgatagggtg atgagctacc tgaacgccag c 591

<210> 120
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<212> DNA
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gaagcctgcc tcccgctgga gctgactaag aacgagagct gtctgaacag cagggagacc 240

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gccaagctgc ttatggaccc taagagacag attttcctgg atcagaacat gctggccgtg 420

attgatgaat taatgcaggc gctgaacttt aacagcgaga ccgtgcccca gaaaagcagc 480

ctggaggagc ccgactttta caagaccaag atcaagttgt gcatcctcct gcacgccttc 540

agaatcagag cggtgacgat cgacagagtc atgagctacc tcaacgctag c 591

<210> 121
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<220>
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gccaagctgc tgatggaccc caagagacag atcttcctgg accagaacat gctggccgtg 420

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ctggaggagc ccgacttcta caagaccaag atcaagctgt gcatcctgct gcacgccttc 540

agaatcagag ccgtgaccat cgacagagtg atgagctacc tgaacgccag c 591

<210> 122
<211> 591
<212> DNA
<213> Artificial Sequence

<220>
<223> IL12a of B4

<400> 122
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aacctgctgc gggctgtgag caacatgctg cagaaggccc ggcagaccct ggagttctac 120

ccctgcacca gcgaggagat tgaccacgag gacatcacca aggacaagac cagcacagtg 180

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<210> 123
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<400> 123
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<223> IL12a of C2

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ccctgtacct cagaggagat cgatcatgag gacattacta aggacaagac cagcaccgtg 180

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attgatgaat taatgcaggc gctgaacttt aacagcgaga ccgtgcccca gaaaagcagc 480

ctggaggagc ccgactttta caagaccaag atcaagttgt gcatcctcct gcacgccttc 540

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<210> 127
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<223> GS Linker of L2

<400> 127
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<210> 128
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<400> 128
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<210> 129
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<400> 129
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<210> 130
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<400> 137
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<210> 141
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<210> 142
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<400> 142
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<210> 143
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<223> GS Linker of B4

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<210> 144
<211> 18
<212> DNA
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<220>
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<400> 144
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<210> 145
<211> 18
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<223> GS Linker of C2

<400> 145
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<210> 146
<211> 18
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aaattggtga acgaggtaac agaatttgct aagacttgtg tggctgacga gtcggccgaa 180

aactgtgata agagtcttca tacactgttt ggcgataagc tatgtactgt cgctacactt 240

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gcggccctgg gcctgtag 1758

<210> 148
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<212> DNA
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<223> Albumin of L2

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tgtttcctgc agcacaagga tgataatccc aatctgccac gacttgtacg gccggaggta 360

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gtggaggagc cccagaacct gatcaagcag aactgcgagc tgttcgagca gctgggcgag 1200

tacaagttcc agaacgccct gctggtgaga tacaccaaga aggtgcccca ggtgagcacc 1260

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gccgccctgg gcctg 1755

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<220>
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aagctggtga atgaggtgac agaatttgcc aagacctgtg tggctgatga atctgctgag 180

aactgtgaca agagcctgca caccctgttt ggagacaagc tgtgcaccgt ggccaccctg 240

cgggagacct atggagagat ggctgactgc tgtgccaagc aggagcctga gagaaatgaa 300

tgcttcctgc agcacaagga tgacaacccc aacctgcccc ggctggtgcg gcctgaggtg 360

gatgtgatgt gcacagcctt ccatgacaat gaggagacct tcctgaagaa gtacctgtat 420

gaaattgccc ggcggcaccc ctacttctac gcccctgagc tgctgttctt tgccaagcgc 480

tacaaggccg ccttcacaga gtgctgccag gccgctgaca aggccgcctg cctgctgccc 540

aagctggatg agctgagaga tgagggcaag gccagcagcg ccaagcagag gctgaagtgt 600

gccagcctgc agaagtttgg agagcgggcc ttcaaggcct gggccgtggc ccggctgagc 660

cagcgcttcc ccaaggccga gtttgctgag gtgtccaagc tggtgacaga cctgaccaag 720

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tacaagttcc agaatgccct gctggtgcgc tacaccaaga aggtgcccca ggtgtccacc 1260

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<210> 165
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<212> DNA
<213> Artificial Sequence

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<223> Albumin of C1

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aagctggtga atgaagtgac cgagtttgcc aagacgtgcg tggctgatga gagcgccgaa 180

aactgcgaca aaagcctgca caccctgttt ggcgacaagc tgtgcaccgt agccaccctg 240

agagaaactt acggcgagat ggctgactgc tgcgccaagc aggagcccga gagaaacgag 300

tgctttctgc agcacaagga cgacaatccc aacctgccca gactggtgag acccgaagtg 360

gatgttatgt gcaccgcttt ccacgacaat gaagagacat ttctcaagaa gtacttgtac 420

gagattgcaa gaagacaccc ttacttttac gcccccgaat tactgttctt cgctaagagg 480

tataaggcag ccttcactga atgctgccag gctgccgaca aagcagcttg cctgctgcca 540

aagctggatg aactgcgaga cgaaggaaag gcgtcctccg ccaagcagcg tttgaagtgc 600

gccagccttc agaagtttgg cgagcgggcc ttcaaggcat gggccgtggc tcgacttagc 660

cagcgttttc ccaaggctga atttgcagag gtgagtaaac tggttaccga tctgacaaag 720

gtgcacaccg agtgctgtca cggtgacctc ttagagtgcg ccgacgacag agccgacctc 780

gccaagtaca tttgtgaaaa ccaagactca atctcttcaa agttaaagga gtgctgcgaa 840

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gacttgccca gcttggcagc cgacttcgtt gagtctaagg acgtgtgcaa gaattacgcc 960

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tgtgccgctg cggaccccca cgagtgctat gccaaagtgt tcgatgagtt taaacccctg 1140

gtggaggaac ctcagaacct tatcaagcag aattgtgagt tgttcgaaca gctaggcgag 1200

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ccgaccttag tggaagtgtc cagaaacctg ggcaaggtgg gcagcaagtg ctgcaagcac 1320

cccgaagcta agagaatgcc gtgcgcggag gattacctga gcgtggtgct caaccagctg 1380

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aaggagcagc tgaaggccgt catggacgac ttcgcagcct tcgtcgagaa atgctgcaaa 1680

gccgacgaca aggaaacctg cttcgccgaa gagggaaaga agctggtggc cgcctcccag 1740

gccgcccttg ggctc 1755

<210> 166
<211> 1755
<212> DNA
<213> Artificial Sequence

<220>
<223> Albumin of C2

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aagctggtga acgaggtgac cgagttcgcc aagacctgtg tggccgacga gagcgccgag 180

aactgcgata agtctctgca cacccttttt ggcgacaaac tgtgcaccgt ggccaccctg 240

agagagacct acggcgagat ggccgactgc tgtgcgaagc aggagcccga gcgcaatgag 300

tgtttcctgc agcataagga cgacaacccc aacctgccca gactggtgag acccgaggtg 360

gacgtgatgt gcaccgcctt ccacgacaac gaggagacct ttctgaaaaa atacctgtac 420

gagatcgcaa gacgccaccc ctacttctac gcccccgagc tgctgttctt cgccaagcgc 480

tacaaggctg ccttcaccga atgctgccag gccgccgata aggccgcgtg cttactgcca 540

aagctggacg agctgagaga cgaggggaaa gcctctagcg ccaaacagag attgaagtgt 600

gccagcctgc agaaattcgg tgagagagcc ttcaaggcct gggccgtggc cagattatca 660

cagcggttcc ccaaggctga attcgccgag gtgagcaaac ttgtcaccga tctgacaaaa 720

gtgcacaccg agtgctgcca tggcgacctg ctggagtgcg ccgacgaccg ggccgacctg 780

gccaagtaca tctgcgagaa ccaggacagc atctccagca agctgaagga gtgctgcgag 840

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gacctgccca gcctggccgc cgacttcgtg gaaagcaagg acgtgtgcaa aaattacgcc 960

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gagttcaacg ccgagacgtt cactttccac gcggacatct gcaccctgag cgagaaggag 1560

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gccgctctcg gcctt 1755

<210> 167
<211> 1755
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<213> Artificial Sequence

<220>
<223> Albumin of C3

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aattgcgaca agagcctgca taccctgttc ggcgacaagc tgtgcaccgt ggccaccctg 240

agagagacct acggcgagat ggccgactgc tgcgccaagc aagagcccga gagaaacgag 300

tgcttcctgc agcacaagga cgacaacccc aacctgcccc ggctggtgag acccgaggtg 360

gacgtgatgt gcaccgcctt ccacgacaac gaggagacct tcctgaagaa gtatctgtac 420

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tataaggcag ccttcaccga gtgttgtcag gccgccgata aggccgcttg cctgctgccc 540

aagttggacg agctcagaga cgagggcaag gcgagcagcg ccaagcagag actgaagtgc 600

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gccgccctcg gcctg 1755

<210> 168
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of C1

<400> 168
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<210> 169
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> GS Linker of C2

<400> 169
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<210> 170
<211> 24
<212> DNA
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<220>
<223> GS Linker of C3

<400> 170
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<212> DNA
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<223> Lumican of C1

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aagtccgtgc ccatggtgcc cccaggcatc aagtacttat acttgaggaa caaccaaatc 180

gatcatatcg acgagaaggc cttcgaaaac gtaaccgacc tgcagtggct gatactggat 240

cacaatctgc tagagaattc caagatcaag ggcagagtgt tctcgaagct gaaacaactg 300

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ctggaggacc tgcagctgac ccacaacaaa ataaccaaac taggcagctt cgaggggttg 420

gtgaatctga ccttcatcca tttgcagcat aacagactaa aggaggatgc cgtgagcgcc 480

gccttcaaag gcctcaagag ccttgagtac ctggacctga gcttcaacca gatcgcccgg 540

ctgcccagtg ggctgcccgt gagcctgctg acgctgtatc tggacaataa caaaatcagc 600

aacatccccg acgaatactt caaaagattc aacgccttac agtacctgcg actcagccac 660

aatgagctcg ctgacagcgg catccctggc aacagcttca acgtgtcatc cctggtggag 720

ctggacctga gttacaataa gctgaagaac atcccaactg tcaatgagaa tttggaaaac 780

tactacctgg aggtgaacca gctggagaag ttcgacatta agagcttttg caaaatcctg 840

ggcccactgt catatagcaa gatcaagcac ctgcgactgg acggcaaccg aatcagtgaa 900

acttccctac cccctgacat gtacgagtgc ctgagagtag caaatgaggt gaccctgaac 960

<210> 172
<211> 960
<212> DNA
<213> Artificial Sequence

<220>
<223> Lumican of C2

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aagtctgtgc ctatggtgcc tcccggcatc aagtacctgt acctgagaaa caaccagata 180

gaccacatcg atgagaaagc cttcgagaac gtcaccgacc tgcagtggct gattctggac 240

cacaatttac tggagaactc caagatcaag ggcagagtgt tctccaagtt aaagcagctg 300

aagaaactgc acatcaatca caacaacctg accgagagcg tgggcccact gcccaagagc 360

ctagaggatc tgcagctcac ccacaacaag atcactaagt tgggcagctt cgagggcctc 420

gtaaacttga cattcataca tctgcagcac aacagactta aggaagacgc cgtgagtgcg 480

gcctttaagg gtctgaaaag cctggagtac ttagacctga gcttcaacca gatcgcaagg 540

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aacgagttag ctgactcggg catacccggt aacagcttca atgttagcag cctagttgag 720

cttgacttga gctacaacaa gcttaagaac atcccaaccg tgaacgagaa cctcgagaat 780

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ggcccactgt cctatagcaa gatcaagcac ctgcgccttg acggaaacag aattagcgag 900

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<210> 173
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<212> DNA
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<223> Lumican of C3

<400> 173
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aaaagcgtgc ccatggtgcc ccccggcatc aagtacctgt acttgagaaa caaccagatc 180

gaccacattg acgaaaaggc cttcgagaac gtaaccgacc tgcagtggct gatcctggac 240

cacaacctgc ttgagaacag caagatcaag ggccgcgtgt tcagcaagct gaagcagctg 300

aagaagctgc acatcaacca caacaacttg actgagtctg ttggcccccc accaaagagc 360

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gcctttaagg ggctgaaaag cctggagtac ctggacctga gttttaacca gatcgccaga 540

ctgccctcag gcctgcccgt gagtttgctg actctgtacc tggacaacaa taagatcagc 600

aacattcctg acgagtattt caaaagattc aatgctctgc agtacctgag actaagccac 660

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ttggacctga gctacaacaa actgaagaac atccccaccg tcaatgagaa cttggagaat 780

tactacctcg aggttaacca gcttgagaag ttcgacatca agagcttctg caagatcctg 840

ggccccctca gctacagcaa gatcaagcac ttgagactgg acgggaacag aatcagcgaa 900

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<210> 174
<211> 13
<212> DNA
<213> Artificial Sequence

<220>
<223> Kozak Sequence

<400> 174
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<210> 175

<400> 175
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<210> 176

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<210> 180
<211> 21
<212> PRT
<213> Artificial Sequence

<220>
<223> Leader Sequence

<400> 180

Met Arg Val Pro Ala Gln Leu Leu Gly Leu Leu Leu Leu Trp Leu Pro
1 5 10 15

Gly Ala Arg Cys Ala
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<210> 181
<211> 34
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<213> Artificial Sequence

<220>
<223> Forward Primer

<400> 181
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<210> 182
<211> 547
<212> PRT
<213> Artificial Sequence

<220>
<223> Wild-type IL-12

<400> 182

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

Gly Met Phe Pro Cys Leu His His Ser Gln Asn Leu Leu Arg Ala Val
35 40 45

Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu Phe Tyr Pro Cys
50 55 60

Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys Thr Ser

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65                  70                  75                  80

Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys
                85                  90                  95

Leu Asn Ser Arg Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala
            100                 105                 110

Ser Arg Lys Thr Ser Phe Met Met Ala Leu Cys Leu Ser Ser Ile Tyr
        115                 120                 125

Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr Met Asn Ala Lys
    130                 135                 140

Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn Met Leu
145                 150                 155                 160

Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser Glu Thr
                165                 170                 175

Val Pro Gln Lys Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys
            180                 185                 190

Ile Lys Leu Cys Ile Leu Leu His Ala Phe Arg Ile Arg Ala Val Thr
        195                 200                 205

Ile Asp Arg Val Met Ser Tyr Leu Asn Ala Ser Met Cys His Gln Gln
    210                 215                 220

Leu Val Ile Ser Trp Phe Ser Leu Val Phe Leu Ala Ser Pro Leu Val
225                 230                 235                 240

Ala Ile Trp Glu Leu Lys Lys Asp Val Tyr Val Val Glu Leu Asp Trp
                245                 250                 255

Tyr Pro Asp Ala Pro Gly Glu Met Val Val Leu Thr Cys Asp Thr Pro
            260                 265                 270
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Glu Glu Asp Gly Ile Thr Trp Thr Leu Asp Gln Ser Ser Glu Val Leu
        275                 280                 285

Gly Ser Gly Lys Thr Leu Thr Ile Gln Val Lys Glu Phe Gly Asp Ala
    290                 295                 300

Gly Gln Tyr Thr Cys His Lys Gly Gly Glu Val Leu Ser His Ser Leu
305                 310                 315                 320

Leu Leu Leu His Lys Lys Glu Asp Gly Ile Trp Ser Thr Asp Ile Leu
                325                 330                 335

Lys Asp Gln Lys Glu Pro Lys Asn Lys Thr Phe Leu Arg Cys Glu Ala
            340                 345                 350

Lys Asn Tyr Ser Gly Arg Phe Thr Cys Trp Trp Leu Thr Thr Ile Ser
        355                 360                 365

Thr Asp Leu Thr Phe Ser Val Lys Ser Ser Arg Gly Ser Ser Asp Pro
    370                 375                 380

Gln Gly Val Thr Cys Gly Ala Ala Thr Leu Ser Ala Glu Arg Val Arg
385                 390                 395                 400

Gly Asp Asn Lys Glu Tyr Glu Tyr Ser Val Glu Cys Gln Glu Asp Ser
                405                 410                 415

Ala Cys Pro Ala Ala Glu Glu Ser Leu Pro Ile Glu Val Met Val Asp
            420                 425                 430

Ala Val His Lys Leu Lys Tyr Glu Asn Tyr Thr Ser Ser Phe Phe Ile
        435                 440                 445

Arg Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn Leu Gln Leu Lys Pro
    450                 455                 460
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Leu Lys Asn Ser Arg Gln Val Glu Val Ser Trp Glu Tyr Pro Asp Thr
465                 470                 475                 480


Trp Ser Thr Pro His Ser Tyr Phe Ser Leu Thr Phe Cys Val Gln Val
                485                 490                 495


Gln Gly Lys Ser Lys Arg Glu Lys Lys Asp Arg Val Phe Thr Asp Lys
            500                 505                 510


Thr Ser Ala Thr Val Ile Cys Arg Lys Asn Ala Ser Ile Ser Val Arg
        515                 520                 525


Ala Gln Asp Arg Tyr Tyr Ser Ser Ser Trp Ser Glu Trp Ala Ser Val
    530                 535                 540


Pro Cys Ser
545


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<212>  PRT
<213>  Artificial Sequence

<220>
<223>  Wild-type IL12a

<400>  183

Met Cys Pro Ala Arg Ser Leu Leu Leu Val Ala Thr Leu Val Leu Leu
1               5                   10                  15


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


Gly Met Phe Pro Cys Leu His His Ser Gln Asn Leu Leu Arg Ala Val
        35                  40                  45


Ser Asn Met Leu Gln Lys Ala Arg Gln Thr Leu Glu Phe Tyr Pro Cys
    50                  55                  60
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Thr Ser Glu Glu Ile Asp His Glu Asp Ile Thr Lys Asp Lys Thr Ser
65                  70                  75                  80

Thr Val Glu Ala Cys Leu Pro Leu Glu Leu Thr Lys Asn Glu Ser Cys
                85                  90                  95

Leu Asn Ser Arg Glu Thr Ser Phe Ile Thr Asn Gly Ser Cys Leu Ala
            100                 105                 110

Ser Arg Lys Thr Ser Phe Met Met Ala Leu Cys Leu Ser Ser Ile Tyr
        115                 120                 125

Glu Asp Leu Lys Met Tyr Gln Val Glu Phe Lys Thr Met Asn Ala Lys
    130                 135                 140

Leu Leu Met Asp Pro Lys Arg Gln Ile Phe Leu Asp Gln Asn Met Leu
145                 150                 155                 160

Ala Val Ile Asp Glu Leu Met Gln Ala Leu Asn Phe Asn Ser Glu Thr
                165                 170                 175

Val Pro Gln Lys Ser Ser Leu Glu Glu Pro Asp Phe Tyr Lys Thr Lys
            180                 185                 190

Ile Lys Leu Cys Ile Leu Leu His Ala Phe Arg Ile Arg Ala Val Thr
        195                 200                 205

Ile Asp Arg Val Met Ser Tyr Leu Asn Ala Ser
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<212> PRT
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<220>
<223> Wild-type IL12b

<400> 184

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Met Cys His Gln Gln Leu Val Ile Ser Trp Phe Ser Leu Val Phe Leu
1               5                   10                  15


Ala Ser Pro Leu Val Ala Ile Trp Glu Leu Lys Lys Asp Val Tyr Val
            20                  25                  30


Val Glu Leu Asp Trp Tyr Pro Asp Ala Pro Gly Glu Met Val Val Leu
        35                  40                  45


Thr Cys Asp Thr Pro Glu Glu Asp Gly Ile Thr Trp Thr Leu Asp Gln
    50                  55                  60


Ser Ser Glu Val Leu Gly Ser Gly Lys Thr Leu Thr Ile Gln Val Lys
65                  70                  75                  80


Glu Phe Gly Asp Ala Gly Gln Tyr Thr Cys His Lys Gly Gly Glu Val
                85                  90                  95


Leu Ser His Ser Leu Leu Leu Leu His Lys Lys Glu Asp Gly Ile Trp
            100                 105                 110


Ser Thr Asp Ile Leu Lys Asp Gln Lys Glu Pro Lys Asn Lys Thr Phe
        115                 120                 125


Leu Arg Cys Glu Ala Lys Asn Tyr Ser Gly Arg Phe Thr Cys Trp Trp
    130                 135                 140


Leu Thr Thr Ile Ser Thr Asp Leu Thr Phe Ser Val Lys Ser Ser Arg
145                 150                 155                 160


Gly Ser Ser Asp Pro Gln Gly Val Thr Cys Gly Ala Ala Thr Leu Ser
                165                 170                 175


Ala Glu Arg Val Arg Gly Asp Asn Lys Glu Tyr Glu Tyr Ser Val Glu
            180                 185                 190
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Cys Gln Glu Asp Ser Ala Cys Pro Ala Ala Glu Glu Ser Leu Pro Ile
        195                 200                 205

Glu Val Met Val Asp Ala Val His Lys Leu Lys Tyr Glu Asn Tyr Thr
    210                 215                 220

Ser Ser Phe Phe Ile Arg Asp Ile Ile Lys Pro Asp Pro Pro Lys Asn
225                 230                 235                 240

Leu Gln Leu Lys Pro Leu Lys Asn Ser Arg Gln Val Glu Val Ser Trp
                245                 250                 255

Glu Tyr Pro Asp Thr Trp Ser Thr Pro His Ser Tyr Phe Ser Leu Thr
            260                 265                 270

Phe Cys Val Gln Val Gln Gly Lys Ser Lys Arg Glu Lys Lys Asp Arg
        275                 280                 285

Val Phe Thr Asp Lys Thr Ser Ala Thr Val Ile Cys Arg Lys Asn Ala
    290                 295                 300

Ser Ile Ser Val Arg Ala Gln Asp Arg Tyr Tyr Ser Ser Ser Trp Ser
305                 310                 315                 320

Glu Trp Ala Ser Val Pro Cys Ser
                325
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