SEQUENCE LISTING

<110> Barrett, Rachel Rebecca
Canada, Keith
Catron, Katrina Mary
Copenhaver, Robert
Frego, Lee Edward
Raymond, Ernest Lee
Singh, Sanjaya
Zhu, Xiangyang

<120> Anti-IL-23 Antibodies

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            20   25   30
Gly Gln Asn Phe Ile His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
        35   40   45
Lys Leu Leu Ile Tyr Arg Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
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Arg Phe Ser Gly Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Met Asn
65   70   75   80
Pro Val Glu Ala Asp Asp Val Ala Thr Tyr Tyr Cys Gln Gln Thr Asn
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            20   25   30
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        35   40   45
Phe Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg Phe Thr Gly
    50   55   60

Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Ser Asn Val Gln Ser
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35 40 45
Lys Leu Leu Ile Tyr Arg Ala Ser Asn Leu Glu Ser Gly Ile Pro Ala
50 55 60
Arg Phe Ser Gly Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Asn
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35 40 45

Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
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Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
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35 40 45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
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35 40 45
Lys Phe Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Thr Gly
50 55 60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asp Ser Val Glu Pro
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85 90 95
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            20   25   30
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        35   40   45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Pro
65   70   75   80
Glu Asp Val Gly Val Tyr Tyr Cys Gln Asn Gly His Ser Phe Pro Phe
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Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
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            20   25   30
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        35   40   45
Lys Phe Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Thr Gly
    50   55   60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asp Ser Val Glu Pro
65   70   75   80
Asp Asp Val Gly Val Phe Phe Cys Gln Asn Gly His Ser Phe Pro Phe
                85   90   95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
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catgagtctc caaggcttct catcaaatat gcttcccaat ccatctctgg gatcccctcc 180
aggttcagtg gcagtggatc agggtcagat ttcactctca gtatcaacag tgtggaacct 240
gaagatgttg gagtttatta ctgtcaaaat ggtcacagct ttccattcac gttcggctcg 300
gggacaaagt tggaaataaa a 321

<210> 99
<211> 107
<212> PRT
<213> Mouse

<400> 99
Asp Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1   5   10   15
Asp Arg Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Glu Tyr
            20   25   30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
        35   40   45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Pro
65   70   75   80
Glu Asp Val Gly Val Tyr Tyr Cys Gln Asn Gly His Ser Phe Pro Phe
                85   90   95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
            100   105

<210> 100
<211> 321
<212> DNA
<213> Mouse

<400> 100
gacattgtga tgactcagtc tccagccacc ctgtctgtga ctccaggaga tagagtctct 60
ctctcctgca gggccagcca gagtattagc gtctacttac actggtatca acaaaaatca 120
cctgagtctc caaggcttct catcaaatat gcttcccaat ccatctctgg gatcccctcc 180
aggttcagtg gcagtggatc agggtcagat ttcactctca gtatcaacag tgtggaacct 240
gaagatgttg gagtttatta ctgtcaaaat ggtcacagct ttccattcac gttcggctcg 300
gggacaaagt tggaaataaa a 321

<210> 101
<211> 107
<212> PRT
<213> Mouse

<400> 101
Asp Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
 1   5   10   15
Asp Arg Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Val Tyr
            20   25   30
Leu His Trp Tyr Gln Gln Lys Ser Pro Glu Ser Pro Arg Leu Leu Ile
        35   40   45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Pro
65   70   75   80
Glu Asp Val Gly Val Tyr Tyr Cys Gln Asn Gly His Ser Phe Pro Phe
                85   90   95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys

100 105

<210> 102
<211> 321
<212> DNA
<213> Mouse

<400> 102
gacattgtga tgactcagtc tccagccacc ctgtctgtga ctccaggaaa tagagtctct 60
ctttcctgca gggccagcca gagtattagc gactacttac actggtatca acaaaaatca 120
catgagtctc caaggcttct catcaaatat gcttcccaat ccatctctgg gatcccctcc 180
aggttcagtg gcagtggatc agggtcaaat ttcactctca gtatcaacag tgtggaacct 240
gaagatgttg gagtgtatta ttgtcaaaat ggtcacagct ttccattcac gttcggctcg 300
gggacaaagt tggaaataaa a 321

<210> 103
<211> 107
<212> PRT
<213> Mouse

<400> 103
Asp Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asn Arg Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asp Tyr
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Ser Asn Phe Thr Leu Ser Ile Asn Ser Val Glu Pro
65 70 75 80
Glu Asp Val Gly Val Tyr Tyr Cys Gln Asn Gly His Ser Phe Pro Phe
85 90 95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 104
<211> 333
<212> DNA
<213> Mouse

<400> 104
gacattgtgc tgacacagtc tcctgcttcc ttagctgttt ctctggggca gagggccacc 60
atctcatgca gggccagcaa aagtgtcaga ttctctgact atttttatat gcactggtac 120
caacagaaac caggacagcc acccaaactc ctcatctacc ttgcatccaa cctagaatct 180
ggggtccctg ccaggttcag tggcagtggg tctgggacag acttcaccct caacatccat 240
cctgtggagg aggaggatgc tgcaacctat tactgtcaga acagtaggga gcttccgtac 300
acgttcggag gggggaccaa gctggagata aaa 333

<210> 105
<211> 111
<212> PRT
<213> Mouse

<400> 105
Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
1 5 10 15
Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Lys Ser Val Arg Phe Ser
20 25 30
Asp Tyr Phe Tyr Met His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45
Lys Leu Leu Ile Tyr Leu Ala Ser Asn Leu Glu Ser Gly Val Pro Ala
50 55 60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His
65 70 75 80
Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr Tyr Cys Gln Asn Ser Arg

85 90 95
Glu Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 106
<211> 333
<212> DNA
<213> Mouse

<400> 106
gacattgtgt tgacacagtc tcctgcttcc ttagctgtat ctctggggca gagggccacc 60
atctcatgca gggccagcaa aagtgtcagt acatctggct atagttatat acactggtac 120
caacagaaac cgggacagcc acccaaattc ctcatctatc ttgcatccaa cctagattct 180
ggggtccctg ccaggttcag tggcagtggg tctgggacag acttcaccct caacatccat 240
cctgtggagg aggaggatgc tgcaacctat tactgtcagc acagtaggga gcttccgtac 300
acgttcggag gggggaccaa gctggaaata aaa 333

<210> 107
<211> 111
<212> PRT
<213> Mouse

<400> 107
Asp Ile Val Leu Thr Gln Ser Pro Ala Ser Leu Ala Val Ser Leu Gly
1 5 10 15
Gln Arg Ala Thr Ile Ser Cys Arg Ala Ser Lys Ser Val Ser Thr Ser
20 25 30
Gly Tyr Ser Tyr Ile His Trp Tyr Gln Gln Lys Pro Gly Gln Pro Pro
35 40 45
Lys Phe Leu Ile Tyr Leu Ala Ser Asn Leu Asp Ser Gly Val Pro Ala
50 55 60
Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Asn Ile His
65 70 75 80
Pro Val Glu Glu Glu Asp Ala Ala Thr Tyr Tyr Cys Gln His Ser Arg
85 90 95
Glu Leu Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 108
<211> 321
<212> DNA
<213> Mouse

<400> 108
gacattgtga tgactcagtc tccagccacc ctgtctgtga ctccaggaga tagagtctct 60
ctttcctgca gggccagcca gagtattagc gactacttac actggtatca acaaaaatca 120
catgagtctc caaggcttct catcaaatat gcttcccaat ccatctctgg gatcccctcc 180
aggttcagtg gcagtggatc agggtcagat ttcactctca gtatcaacag tgtggaacct 240
gaagatgttg gagtgtatta ctgtcaaaat ggtcacagct ttccgtacac gttcggaggg 300
gggaccaagc tggaaataaa a 321

<210> 109
<211> 107
<212> PRT
<213> Mouse

<400> 109
Asp Ile Val Met Thr Gln Ser Pro Ala Thr Leu Ser Val Thr Pro Gly
1 5 10 15
Asp Arg Val Ser Leu Ser Cys Arg Ala Ser Gln Ser Ile Ser Asp Tyr
20 25 30
Leu His Trp Tyr Gln Gln Lys Ser His Glu Ser Pro Arg Leu Leu Ile
35 40 45
Lys Tyr Ala Ser Gln Ser Ile Ser Gly Ile Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Ser Asp Phe Thr Leu Ser Ile Asn Ser Val Glu Pro

65 70 75 80
Glu Asp Val Gly Val Tyr Tyr Cys Gln Asn Gly His Ser Phe Pro Tyr
85 90 95
Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 110
<211> 336
<212> DNA
<213> Mouse

<400> 110
gatgttgtga tgacccaaac tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60
atctcttgca gatctagtca gagccttgta cacagtaatg gaaacaccta tttacattgg 120
tacctgcaga agccaggcca gtctccaaag ctcctgatct acaaagtttc caaccgattt 180
tctggggtcc ccgacaggtt cagtggcagt ggatcaggga cagatttcac actcaagatc 240
agcagagtgg aggctgagga tctgggagtt tatttctgct ctcaaagtac acatgttccg 300
tacacgttcg gaggggggac caagctggaa ataaat 336

<210> 111
<211> 112
<212> PRT
<213> Mouse

<400> 111
Asp Val Val Met Thr Gln Thr Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Gln Lys Pro Gly Gln Ser
35 40 45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Asn
100 105 110

<210> 112
<211> 318
<212> DNA
<213> Mouse

<400> 112
gacattatga tgacccagtc tcacaaattc atgtccacat cagtaggaga cagggtcagc 60
atcacctgca aggccagtca ggatgtgggt aatgctgtgg tctggtatca acaaaaacca 120
gggcaatctc ctaaactact gatttactgg gcatccaccc ggcacattgg agtccctgat 180
cgcttcacag gcagtggatc tgggacagat ttcactctca ccattaccaa tgtgcagtct 240
gaagacttgg cagattattt ctgtcagcaa tatagcagct atctcacgtt cggtgctggg 300
accaagctgg agctgaaa 318

<210> 113
<211> 106
<212> PRT
<213> Mouse

<400> 113
Asp Ile Met Met Thr Gln Ser His Lys Phe Met Ser Thr Ser Val Gly
1 5 10 15
Asp Arg Val Ser Ile Thr Cys Lys Ala Ser Gln Asp Val Gly Asn Ala
20 25 30
Val Val Trp Tyr Gln Gln Lys Pro Gly Gln Ser Pro Lys Leu Leu Ile
35 40 45
Tyr Trp Ala Ser Thr Arg His Ile Gly Val Pro Asp Arg Phe Thr Gly

50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Thr Asn Val Gln Ser
65 70 75 80
Glu Asp Leu Ala Asp Tyr Phe Cys Gln Gln Tyr Ser Ser Tyr Leu Thr
85 90 95
Phe Gly Ala Gly Thr Lys Leu Glu Leu Lys
100 105

<210> 114
<211> 336
<212> DNA
<213> Mouse

<400> 114
gatgttgtga tgacccaatc tccactctcc ctgcctgtca gtcttggaga tcaagcctcc 60
atctcttgca gatctagtca gagccttgta cacagtaatg gaaacaccta tctacattgg 120
tacctgctga agccaggcca gtctccaaag ctcctgatct acaaagtttc caaccgattt 180
tctggggtcc cagacaggtt cagtggcagt ggatcaggga cagatttcac actcaagatc 240
agcagagtgg aggctgagga tctgggagtt tatttctgct ctcaaagtac acatgttccg 300
tacacgttcg gaggggggac caagctggaa ataaaa 336

<210> 115
<211> 112
<212> PRT
<213> Mouse

<400> 115
Asp Val Val Met Thr Gln Ser Pro Leu Ser Leu Pro Val Ser Leu Gly
1 5 10 15
Asp Gln Ala Ser Ile Ser Cys Arg Ser Ser Gln Ser Leu Val His Ser
20 25 30
Asn Gly Asn Thr Tyr Leu His Trp Tyr Leu Leu Lys Pro Gly Gln Ser
35 40 45
Pro Lys Leu Leu Ile Tyr Lys Val Ser Asn Arg Phe Ser Gly Val Pro
50 55 60
Asp Arg Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Leu Lys Ile
65 70 75 80
Ser Arg Val Glu Ala Glu Asp Leu Gly Val Tyr Phe Cys Ser Gln Ser
85 90 95
Thr His Val Pro Tyr Thr Phe Gly Gly Gly Thr Lys Leu Glu Ile Lys
100 105 110

<210> 116
<211> 321
<212> DNA
<213> Mouse

<400> 116
gacatccaga tgactcagtc tccagttttc ctgtctgcat ctgtgggaga aactgtcacc 60
atcacatgtc gagcaagtga gaatattgac agttatttag catggtatca gcagaaacag 120
ggaaaatctc ctcagctcct ggtctttgct gcacgaaact tagcagatgg tgtgccatca 180
aggttcagtg gcagtggatc aggcacacag tattctctca agatcaacag aatgcagtct 240
gaagatgttg cgagatacta ctgtcaacat tattatagta ctccattcac gttcggctcg 300
gggacaaagt tggaaataga a 321

<210> 117
<211> 107
<212> PRT
<213> Mouse

<400> 117
Asp Ile Gln Met Thr Gln Ser Pro Val Phe Leu Ser Ala Ser Val Gly
1 5 10 15
Glu Thr Val Thr Ile Thr Cys Arg Ala Ser Glu Asn Ile Asp Ser Tyr
20 25 30
Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser Pro Gln Leu Leu Val

```
        35                  40                  45
Phe Ala Ala Arg Asn Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile Asn Arg Met Gln Ser
65                  70                  75                  80
Glu Asp Val Ala Arg Tyr Tyr Cys Gln His Tyr Tyr Ser Thr Pro Phe
                85                  90                  95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Glu
            100                 105
```

<210> 118
<211> 321
<212> DNA
<213> Mouse

<400> 118
gacatccaga tgactcagtc gccagcttcc ctgtctgcat ctgtgggaga aactgtcatc 60
ttcacatgtc gagcaagtga gaatattgac agttatttag catggtatca gcagaaacag 120
ggaaaatctc ctcagctcct ggtctatgct gcaacaaact tagcagatgg tgtgccatca 180
aggttcagtg gcagtggatc aggcacacag tattctctca agatcaacag cctgcagtct 240
gaagatgttg cgagatatta ctgtctacat tattatagta ctccattcac gttcggctcg 300
gggacagagt tggaaataaa a   321

<210> 119
<211> 107
<212> PRT
<213> Mouse

<400> 119
```
Asp Ile Gln Met Thr Gln Ser Pro Ala Ser Leu Ser Ala Ser Val Gly
 1               5                  10                  15
Glu Thr Val Ile Phe Thr Cys Arg Ala Ser Glu Asn Ile Asp Ser Tyr
            20                  25                  30
Leu Ala Trp Tyr Gln Gln Lys Gln Gly Lys Ser Pro Gln Leu Leu Val
        35                  40                  45
Tyr Ala Ala Thr Asn Leu Ala Asp Gly Val Pro Ser Arg Phe Ser Gly
    50                  55                  60
Ser Gly Ser Gly Thr Gln Tyr Ser Leu Lys Ile Asn Ser Leu Gln Ser
65                  70                  75                  80
Glu Asp Val Ala Arg Tyr Tyr Cys Leu His Tyr Tyr Ser Thr Pro Phe
                85                  90                  95
Thr Phe Gly Ser Gly Thr Glu Leu Glu Ile Lys
            100                 105
```

<210> 120
<211> 357
<212> DNA
<213> Mouse

<400> 120
caggtgcagc tgaaggagtc aggacctggc ctggtggcgc cctcacagag cctgtccatc 60
acatgcactg tctctgggtt ctcattaacc acctatgcta taagctgggt tcgccagtca 120
ccaggaaagg gtctggagtg gcttggagtc atatggactg gtggaggcac aaaatataat 180
tcagctctca aatccagact gagcatcagc aaagacaact ccaagagtca agttttctta 240
aaaatgaaca gtctgcaaac tgatgacaca gccaggtact actgtgccag aaaggactat 300
aattacgggg gtgctatgga ctactggggt caaggaacct cagtcaccgt ctcctca   357

<210> 121
<211> 119
<212> PRT
<213> Mouse

<400> 121
```
Gln Val Gln Leu Lys Glu Ser Gly Pro Gly Leu Val Ala Pro Ser Gln
 1               5                  10                  15
Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Thr Thr Tyr
```

```
            20                  25                  30
Ala Ile Ser Trp Val Arg Gln Ser Pro Gly Lys Gly Leu Glu Trp Leu
        35                  40                  45
Gly Val Ile Trp Thr Gly Gly Gly Thr Lys Tyr Asn Ser Ala Leu Lys
    50                  55                  60
Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
65                  70                  75                  80
Lys Met Asn Ser Leu Gln Thr Asp Asp Thr Ala Arg Tyr Tyr Cys Ala
                85                  90                  95
Arg Lys Asp Tyr Asn Tyr Gly Gly Ala Met Asp Tyr Trp Gly Gln Gly
            100                 105                 110
Thr Ser Val Thr Val Ser Ser
        115
```

<210> 122
<211> 360
<212> DNA
<213> Mouse

<400> 122
caggttcagc tgcaacagtc tgacgctgag ttggtgaaac ctggcacttc agtgaagaca 60
tcctgcaaaa tttctggcaa caccttcact gaccaaacta ttcactggat gaagcagagg 120
cctgaacagg gcctggaatg gattggatat atttatccta gagatgatag tcctaagtac 180
aatgagaact tcaagggcaa ggccacattg actgcagaca aatcctccag cacagcctac 240
atgcagctca acagtctgac atctgaggac tctgcagtct atttctgtgc aatcccagac 300
aggtcaggct acgcctggtt tatttactgg ggccaaggga ctctggtcac tgtctcttca 360

<210> 123
<211> 120
<212> PRT
<213> Mouse

<400> 123
```
Gln Val Gln Leu Gln Gln Ser Asp Ala Glu Leu Val Lys Pro Gly Thr
 1               5                  10                  15
Ser Val Lys Thr Ser Cys Lys Ile Ser Gly Asn Thr Phe Thr Asp Gln
            20                  25                  30
Thr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80
Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
                85                  90                  95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
            100                 105                 110
Gly Thr Leu Val Thr Val Ser Ser
        115                 120
```

<210> 124
<211> 357
<212> DNA
<213> Mouse

<400> 124
caggtgcagc tgaaggagtc aggacctgtc ctggtggcgc cctcacagag cctgtccatc 60
acatgcactg tctctgggtt ctcattaaac aactttgcta taagttgggt tcgtcagcca 120
ccaggaaagg gtctggagtg gcttggagca atatggactg gtggaggcac aaattataat 180
tcagctctca aatccagact gagcatcagc aaagacaact ccaagagtca agttttctta 240
aaaatgaaca gtctgcaaac tgatgacaca gccaggtatt attgtgtcag aaaggactat 300
agttacgggg gtgctatgga ctactggggt caaggaacct cagtcaccgt ctcctca 357

<210> 125
<211> 119

<212> PRT
<213> Mouse

<400> 125
Gln Val Gln Leu Lys Glu Ser Gly Pro Val Leu Val Ala Pro Ser Gln
 1   5   10   15
Ser Leu Ser Ile Thr Cys Thr Val Ser Gly Phe Ser Leu Asn Asn Phe
            20   25   30
Ala Ile Ser Trp Val Arg Gln Pro Pro Gly Lys Gly Leu Glu Trp Leu
        35   40   45
Gly Ala Ile Trp Thr Gly Gly Gly Thr Asn Tyr Asn Ser Ala Leu Lys
    50   55   60
Ser Arg Leu Ser Ile Ser Lys Asp Asn Ser Lys Ser Gln Val Phe Leu
65   70   75   80
Lys Met Asn Ser Leu Gln Thr Asp Asp Thr Ala Arg Tyr Tyr Cys Val
                85   90   95
Arg Lys Asp Tyr Ser Tyr Gly Gly Ala Met Asp Tyr Trp Gly Gln Gly
            100   105   110
Thr Ser Val Thr Val Ser Ser
        115

<210> 126
<211> 354
<212> DNA
<213> Mouse

<400> 126
gaggtccagc tgcaacagtc tggacctgtg ctggtgaagc ctggggcttc agtgaagatg 60
tcctgtaagg cttctggata cacattcact gactactata tgaactgggt gaagcagagc 120
catggaaaga gccttgagtg gattggagtt attattcctt acaacggtgg tactagctac 180
aaccagaagt tcaagggcaa ggccacattg actgttgaca agtcctccag cacagcctac 240
atggagctca acagcctgac atctgaggac tctgcagtct attactgtgc acgagatggt 300
caccgctggt acttcgatgt ctggggcaca gggaccacgg tcaccgtctc ctca   354

<210> 127
<211> 118
<212> PRT
<213> Mouse

<400> 127
Glu Val Gln Leu Gln Gln Ser Gly Pro Val Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
            20   25   30
Tyr Met Asn Trp Val Lys Gln Ser His Gly Lys Ser Leu Glu Trp Ile
        35   40   45
Gly Val Ile Ile Pro Tyr Asn Gly Gly Thr Ser Tyr Asn Gln Lys Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Glu Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Asp Gly His Arg Trp Tyr Phe Asp Val Trp Gly Thr Gly Thr
            100   105   110
Thr Val Thr Val Ser Ser
        115

<210> 128
<211> 115
<212> PRT
<213> Mouse

<400> 128
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Cys Cys

```
            20                  25                  30
Ile Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Arg Arg Trp Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100                 105                 110
Val Ser Ala
        115
```

<210> 129
<211> 345
<212> DNA
<213> Mouse

<400> 129
gaggtccagc tgcagcagtc tggacctgag ctggtcaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cacattcact cgctatctta ttcactgggt gaaacagaag 120
cctgggcagg gccttgagtg gattggatat attaatcctt acaatgatgg tactaaatac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtac ctctaactgg 300
gacctcgact actggggcca aggcaccact ctcacagtct cctca 345

<210> 130
<211> 115
<212> PRT
<213> Mouse

<400> 130

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Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1               5                  10                  15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20                  25                  30
Leu Ile His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Ser Asn Trp Asp Leu Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr
            100                 105                 110
Val Ser Ser
        115
```

<210> 131
<211> 345
<212> DNA
<213> Mouse

<400> 131
gaggtccagc tgcagcagtc tggacctgaa gtggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cctctggata cacattcact agttctgtta tacactgggt gaagcagaag 120
gctgggcagg gccttgagtg gattggatat atcaatccct ataatgatgg tactaagtac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca gatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtac aagacggttg 300
gacgaggctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 132
<211> 115
<212> PRT

<213> Mouse

<400> 132

```
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Val Val Lys Pro Gly Ala
 1               5                  10                  15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Ser
            20                  25                  30
Val Ile His Trp Val Lys Gln Lys Ala Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Arg Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Arg Arg Leu Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100                 105                 110
Val Ser Ala
        115
```

<210> 133
<211> 345
<212> DNA
<213> Mouse

<400> 133

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gaggtccagc tgcagcagtc tggacctgag ctggtaaagc ctggggctgc agtgaagatg 60
tcctgcaagg cttctggata cacattcact cgctatctta ttcactgggt gaagcagaag 120
cctgggcagg gccttgagtg gattggatat attaatcctt acaatgatgg tactaaatat 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtac ctctaattgg 300
gacctcgact actggggcca aggcaccact ctcacagtct cctca                  345
```

<210> 134
<211> 115
<212> PRT
<213> Mouse

<400> 134

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Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1               5                  10                  15
Ala Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20                  25                  30
Leu Ile His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Lys Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Thr Ser Asn Trp Asp Leu Asp Tyr Trp Gly Gln Gly Thr Thr Leu Thr
            100                 105                 110
Val Ser Ser
        115
```

<210> 135
<211> 345
<212> DNA
<213> Mouse

<400> 135

```
gaggtccagc tgcagcagtc tggacctgaa ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cctctggata cacattcact agttctgtta tgcactgggt gaagcagaag 120
gctgggcagg gccttgagtg gattggatat atcaatccct ataatgatgg tactcagtac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca aattttccag cacagcctac 240
```

atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtac aagacggttg 300
gacgaggctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 136
<211> 115
<212> PRT
<213> Mouse

<400> 136
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Ser
20 25 30
Val Met His Trp Val Lys Gln Lys Ala Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Gln Tyr Asn Glu Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Phe Ser Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Thr Arg Arg Leu Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
100 105 110
Val Ser Ala
115

<210> 137
<211> 345
<212> DNA
<213> Mouse

<400> 137
gaggtccagc tgcagcagtc tggacctgag ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cacattcact agctctatta ttcactgggt gaagcagagg 120
cctgggcagg gccttgagtg gattggatat attaatcctt acgatgatgt tactaagtac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtgc aagacggtgg 300
gacgagtctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 138
<211> 115
<212> PRT
<213> Mouse

<400> 138
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Ser Ser
20 25 30
Ile Ile His Trp Val Lys Gln Arg Pro Gly Gln Gly Leu Glu Trp Ile
35 40 45
Gly Tyr Ile Asn Pro Tyr Asp Asp Val Thr Lys Tyr Asn Glu Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Arg Trp Asp Glu Ser Tyr Trp Gly Gln Gly Thr Leu Val Thr
100 105 110
Val Ser Ala
115

<210> 139
<211> 345
<212> DNA
<213> Mouse

<400> 139
gaggtccagc tgcagcagtc tggacctgag ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cactttcact acctctatta tgcactgggt gaaacagaag 120
cctgggcagg gccttgagtg gattggatat attaatcctt acgatgatgt tactaagtac 180
aatgaaaagt tcaaaggcaa ggccacattg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcagtct attactgtgt aagacggtgg 300
gacgaggctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 140
<211> 115
<212> PRT
<213> Mouse

<400> 140
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Thr Ser
            20   25   30
Ile Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Tyr Asp Asp Val Thr Lys Tyr Asn Glu Lys Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Val Arg Arg Trp Asp Glu Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100   105   110
Val Ser Ala
        115

<210> 141
<211> 357
<212> DNA
<213> Mouse

<400> 141
gaggtccagc tgcaacaatc tggacctgag ctggtgaagc ctggggcttc agtgaagata 60
tcctgtaagg cttctggata cacgtttact gactactaca tgaactgggt gaggcagagc 120
catggagaga gccttgagtg gattggagat tttaatcata acaatgatgt tattacttac 180
aacccgaagt tcaagggcaa ggtcacattg actgtagaga agtcttccac cacagcctac 240
atggagctcc gcagcctgtc atctgaggac tctgcagtct attactgtgc aaggggggcta 300
cgaggctact atgctatgga ctactggggt caaggaacct cagtcaccgt ctcctca 357

<210> 142
<211> 119
<212> PRT
<213> Mouse

<400> 142
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
            20   25   30
Tyr Met Asn Trp Val Arg Gln Ser His Gly Glu Ser Leu Glu Trp Ile
        35   40   45
Gly Asp Phe Asn His Asn Asn Asp Val Ile Thr Tyr Asn Pro Lys Phe
    50   55   60
Lys Gly Lys Val Thr Leu Thr Val Glu Lys Ser Ser Thr Thr Ala Tyr
65   70   75   80
Met Glu Leu Arg Ser Leu Ser Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Gly Leu Arg Gly Tyr Tyr Ala Met Asp Tyr Trp Gly Gln Gly
            100   105   110
Thr Ser Val Thr Val Ser Ser
        115

<210> 143
<211> 354
<212> DNA
<213> Mouse

<400> 143
caggttcagc tgcaacagtc tgacgctgag ttggtgaaac ctggagcttc agtgaagata 60
tcctgcaagg tttctggcta caccttcact gaccatacta ttcactggat gaagcagagg 120
cctgaacagg gcctggaatg gattggatat atttatccta gagatggtta tcctaagttc 180
aatgagaagt tcaagggcaa ggccacattg actgcagaca aatcctccag cacagcctac 240
atgcagctca acagcctgac atctgaggac tctgcagtct atttctgtgc aagacggccc 300
ccttactatg ctatggacta ctggggtcaa ggaacctcag tcgccgtctc ctca 354

<210> 144
<211> 118
<212> PRT
<213> Mouse

<400> 144
Gln Val Gln Leu Gln Gln Ser Asp Ala Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Ile Ser Cys Lys Val Ser Gly Tyr Thr Phe Thr Asp His
            20   25   30
Thr Ile His Trp Met Lys Gln Arg Pro Glu Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Tyr Pro Arg Asp Gly Tyr Pro Lys Phe Asn Glu Lys Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Ala Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Gln Leu Asn Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Phe Cys
                85   90   95
Ala Arg Arg Pro Pro Tyr Tyr Ala Met Asp Tyr Trp Gly Gln Gly Thr
            100   105   110
Ser Val Ala Val Ser Ser
        115

<210> 145
<211> 345
<212> DNA
<213> Mouse

<400> 145
gaggtccaac tgcagcagtc tggacctgag ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cacattcact aggtatctta tgcactgggt gaagcagaag 120
cctgggcagg gccttgagtg gattggttat attaatcctt acaatgatgg tactaattac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgttc ccttaactgg 300
gactatgctt actggggcca agggactctg gtcactgtct ctgca 345

<210> 146
<211> 115
<212> PRT
<213> Mouse

<400> 146
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20   25   30
Leu Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Asn Tyr Asn Glu Lys Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80

```
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Ser Leu Asn Trp Asp Tyr Ala Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100                 105                 110
Val Ser Ala
        115
```

<210> 147
<211> 360
<212> DNA
<213> Mouse

<400> 147
gagttccagc tgcagcagtc tggacctgag ctggtgaagc ctggcgcttc agtgaagata 60
tcctgcaagg cttctggtta ctcattcact gactacaaca tgaactgggt gaagcagagc 120
aaaggaaaga gccttgagtg gattggagta attattccta actatggttt tactagctac 180
aatcagaact tcaagggcaa ggccactttg actgtagacc agtcttccag cacagcccac 240
atgcagctca acagtgtgac atctgaggac tctgcagtct attactgtgt aagagatggg 300
ggaatactcc tctggtatct cgatgtctgg ggcacaggga ccacggtcac cgtctcctca 360

<210> 148
<211> 120
<212> PRT
<213> Mouse

<400> 148

```
Glu Phe Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1               5                  10                  15
Ser Val Lys Ile Ser Cys Lys Ala Ser Gly Tyr Ser Phe Thr Asp Tyr
            20                  25                  30
Asn Met Asn Trp Val Lys Gln Ser Lys Gly Lys Ser Leu Glu Trp Ile
        35                  40                  45
Gly Val Ile Ile Pro Asn Tyr Gly Phe Thr Ser Tyr Asn Gln Asn Phe
    50                  55                  60
Lys Gly Lys Ala Thr Leu Thr Val Asp Gln Ser Ser Ser Thr Ala His
65                  70                  75                  80
Met Gln Leu Asn Ser Val Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85                  90                  95
Val Arg Asp Gly Gly Ile Leu Leu Trp Tyr Leu Asp Val Trp Gly Thr
            100                 105                 110
Gly Thr Thr Val Thr Val Ser Ser
        115                 120
```

<210> 149
<211> 366
<212> DNA
<213> Mouse

<400> 149
gaggtccagc tgcaacagtc tggacctgag ctggtgaagc ctggggcttc agtgaagata 60
ccctgcaagg cttctggata cacattcact gactacaaca tggactgggt gaagaagagc 120
catggaaaga gccttgagtg gattggagat atcaatcctc acaatggtgg tactatctac 180
aaccagaagt tcaagggcaa ggccacattg actgtagaca agtcctccag cacagcccac 240
atggagctcc gcagcctgac atctgaggac actgcagtct attactgtgc aagaaattac 300
tacggtagta gttacggctg gtacttcgat gtctggggca cagggaccac ggtcaccgtc 360
tcgtca 366

<210> 150
<211> 122
<212> PRT
<213> Mouse

<400> 150

```
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1               5                  10                  15
```

Ser Val Lys Ile Pro Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Tyr
20 25 30
Asn Met Asp Trp Val Lys Lys Ser His Gly Lys Ser Leu Glu Trp Ile
35 40 45
Gly Asp Ile Asn Pro His Asn Gly Gly Thr Ile Tyr Asn Gln Lys Phe
50 55 60
Lys Gly Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala His
65 70 75 80
Met Glu Leu Arg Ser Leu Thr Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Asn Tyr Tyr Gly Ser Ser Tyr Gly Trp Tyr Phe Asp Val Trp
100 105 110
Gly Thr Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 151
<211> 360
<212> DNA
<213> Mouse

<400> 151
gaggtccagc tgcagcagtc tggacctgag ctggtgaagc ctggggcttc agtgaagatt 60
tcctgcaggg cttctggtta ctcattcact ggctactaca tgaactgggt gaagcaaagt 120
cctgaaaaga gccttgagtg gattggagag attattccta ccactggtgg tacttcctac 180
aaccagaagt tcaaggccaa ggccacattg actgtagaca aatcctccag cacagcctac 240
atgcagctca agagcctgac atctgaggac tctgcagtct attactgtgc aagagagagc 300
ggtgggttct actggtactt cgatgtctgg ggcacaggga ccacggtcac cgtctcctca 360

<210> 152
<211> 120
<212> PRT
<213> Mouse

<400> 152
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
1 5 10 15
Ser Val Lys Ile Ser Cys Arg Ala Ser Gly Tyr Ser Phe Thr Gly Tyr
20 25 30
Tyr Met Asn Trp Val Lys Gln Ser Pro Glu Lys Ser Leu Glu Trp Ile
35 40 45
Gly Glu Ile Ile Pro Thr Thr Gly Gly Thr Ser Tyr Asn Gln Lys Phe
50 55 60
Lys Ala Lys Ala Thr Leu Thr Val Asp Lys Ser Ser Ser Thr Ala Tyr
65 70 75 80
Met Gln Leu Lys Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
85 90 95
Ala Arg Glu Ser Gly Gly Phe Tyr Trp Tyr Phe Asp Val Trp Gly Thr
100 105 110
Gly Thr Thr Val Thr Val Ser Ser
115 120

<210> 153
<211> 345
<212> DNA
<213> Mouse

<400> 153
gaggtccagc tgcagcagtc tggacctgag ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cacattcact aggtatgtta tgcactgggt gaagcagaag 120
cctgggcagg gccttgagtg gattggatat attaatcctt acaatgatgt tactaagtac 180
aatgagaagt tcaaaggcaa ggccacactg acttcagaca gatcctccag cacagcctac 240
atgaaactca gcagcctgac ctctgaggac tctgcggtct attattgtgc aagaaactgg 300
gacgttcctt actggggcca agggactctg atcactgtct ctgca 345

<210> 154

<211> 115
<212> PRT
<213> Mouse

<400> 154
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20   25   30
Val Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Tyr Asn Asp Val Thr Lys Tyr Asn Glu Lys Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Arg Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Lys Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Asn Trp Asp Val Pro Tyr Trp Gly Gln Gly Thr Leu Ile Thr
            100   105   110
Val Ser Ala
        115

<210> 155
<211> 345
<212> DNA
<213> Mouse

<400> 155
gaggtccagc tgcagcagtc tggacctgag ctggtaaagc ctggggcttc agtgaagatg 60
tcctgcaagg cttctggata cacattcact aggtatctta tgcactgggt gaagcagaag 120
cctggacagg gccttgagtg gattggatat attaatcctt acaatgatgg tactaagtac 180
aatgagaggt tcaaaggcaa ggccacactg acttcagaca aatcctccag cacagcctac 240
atggagctca gcagcctgac ctctgaggac tctgcggtct attactgtgc aagaaactgg 300
gacgtacctt actggggcca agggactctg gtcactgtct ctgca   345

<210> 156
<211> 115
<212> PRT
<213> Mouse

<400> 156
Glu Val Gln Leu Gln Gln Ser Gly Pro Glu Leu Val Lys Pro Gly Ala
 1   5   10   15
Ser Val Lys Met Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Arg Tyr
            20   25   30
Leu Met His Trp Val Lys Gln Lys Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Asn Pro Tyr Asn Asp Gly Thr Lys Tyr Asn Glu Arg Phe
    50   55   60
Lys Gly Lys Ala Thr Leu Thr Ser Asp Lys Ser Ser Ser Thr Ala Tyr
65   70   75   80
Met Glu Leu Ser Ser Leu Thr Ser Glu Asp Ser Ala Val Tyr Tyr Cys
                85   90   95
Ala Arg Asn Trp Asp Val Pro Tyr Trp Gly Gln Gly Thr Leu Val Thr
            100   105   110
Val Ser Ala
        115

<210> 157
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 157
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gctgttctgg gccagcaccc gccacaccgg cgtgccagac 180
cgcttcagcg gcagcggcag cggcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacctgg ccgactacta ctgccaccag tacagcagct acccattcac cttcggccag 300
ggcaccaagc tggagatcaa g 321

<210> 158
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 158
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
            20   25   30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Leu
        35   40   45
Phe Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65   70   75   80
Glu Asp Leu Ala Asp Tyr Tyr Cys His Gln Tyr Ser Ser Tyr Pro Phe
                85   90   95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys
            100   105

<210> 159
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 159
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gatctactgg gccagcaccc gccacaccgg cgtgccaagc 180
cgcttcagcg gcagcggcag ccgcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacgtgg ccgactactt ctgccaccag tacagcagct acccattcac cttcggcagc 300
ggcaccaagc tggagatcaa g 321

<210> 160
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 160
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
            20   25   30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
        35   40   45
Tyr Trp Ala Ser Thr Arg His Thr Gly Val Pro Ser Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65   70   75   80

Glu Asp Val Ala Asp Tyr Phe Cys His Gln Tyr Ser Ser Tyr Pro Phe
85 90 95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 161
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 161
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gatctactgg gccagcaccc gccacaccgg cgtgccaagc 180
cgcttcagcg gcagcggcag ccgcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacgtgg ccgactactt ctgccaccag tacagcagct acccattcac cttcggcagc 300
ggcaccaagc tggagatcaa g 321

<210> 162
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 162
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
20 25 30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Leu
35 40 45
Tyr Trp Ala Ser Thr Arg His Thr Gly Val Pro Ser Arg Phe Ser Gly
50 55 60
Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Val Ala Thr Tyr Tyr Cys His Gln Tyr Ser Ser Tyr Pro Phe
85 90 95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
100 105

<210> 163
<211> 321
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 163
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gctgttctgg gccagcaccc gccacaccgg cgtgccagac 180
cgcttcagcg gcagcggcag ccgcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacctgg ccgactacta ctgccaccag tacagcagct acccattcac cttcggcagc 300
ggcaccaagc tggagatcaa g 321

<210> 164
<211> 107
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 164
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
            20   25   30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Leu
        35   40   45
Phe Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65   70   75   80
Glu Asp Leu Ala Asp Tyr Tyr Cys His Gln Tyr Ser Ser Tyr Pro Phe
                85   90   95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys
            100   105

<210> 165
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 165
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaaggtg 60
agctgcaagg ccagcggcta caccttcacc gaccagacca tccactggat gcgccaggcc 120
ccaggccagg gcctggagtg gatcggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaact tcaagggcaa ggtcaccatc accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt actactgcgc catcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360

<210> 166
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 166
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1   5   10   15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Gln
            20   25   30
Thr Ile His Trp Met Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35   40   45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
    50   55   60
Lys Gly Lys Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65   70   75   80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85   90   95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
            100   105   110
Gly Thr Leu Val Thr Val Ser Ser
        115   120

<210> 167
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 167
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaaggtg 60
agctgcaagg ccagcggctt caccttcacc gaccagacca tccactgggt gcgccaggcc 120
ccaggccagg gcctggagtg gatgggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaact tcaagggcaa ggtcaccctg accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt actactgcgc catcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360

<210> 168
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 168
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1   5   10   15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Phe Thr Phe Thr Asp Gln
            20   25   30
Thr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35   40   45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
    50   55   60
Lys Gly Lys Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65   70   75   80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85   90   95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
            100   105   110
Gly Thr Leu Val Thr Val Ser Ser
        115   120

<210> 169
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 169
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaagacc 60
agctgcaagg ccagcggcgg caccttcacc gaccagacca tccactgggt gcgccagcgc 120
ccaggccagg gcctggagtg gatgggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaact tcaagggccg cgtcaccatc accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt actactgcgc catcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360

<210> 170
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 170
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1   5   10   15

Ser Val Lys Thr Ser Cys Lys Ala Ser Gly Gly Thr Phe Thr Asp Gln
20 25 30
Thr Ile His Trp Val Arg Gln Arg Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
50 55 60
Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
100 105 110
Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 171
<211> 360
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 171
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaaggtg 60
agctgcaagg ccagcggcgg caccttcacc gaccagacca tccactgggt gcgccaggcc 120
ccaggccagg gcctggagtg gatgggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaatt tcaagggccg cgtcaccctg accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt acttctgcgc ccgcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360

<210> 172
<211> 120
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 172
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
1 5 10 15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Gly Thr Phe Thr Asp Gln
20 25 30
Thr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
35 40 45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
50 55 60
Lys Gly Arg Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Phe Cys
85 90 95
Ala Arg Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
100 105 110
Gly Thr Leu Val Thr Val Ser Ser
115 120

<210> 173
<211> 642
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 173
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gatctactgg gccagcaccc gccacaccgg cgtgccaagc 180
cgcttcagcg gcagcggcag ccgcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacgtgg ccgactactt ctgccaccag tacagcagct acccattcac cttcggcagc 300
ggcaccaagc tggagatcaa gcgtactgtg gctgcaccat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420
cccagagagg ccaaagtaca gtggaaggtg gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gt 642

<210> 174
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 174
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
 1   5   10   15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
            20   25   30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Ile
        35   40   45
Tyr Trp Ala Ser Thr Arg His Thr Gly Val Pro Ser Arg Phe Ser Gly
    50   55   60
Ser Gly Ser Arg Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65   70   75   80
Glu Asp Val Ala Asp Tyr Phe Cys His Gln Tyr Ser Ser Tyr Pro Phe
                85   90   95
Thr Phe Gly Ser Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
            100   105   110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
        115   120   125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
    130   135   140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145   150   155   160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
                165   170   175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
            180   185   190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
        195   200   205
Phe Asn Arg Gly Glu Cys
    210

<210> 175
<211> 1347
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 175
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaaggtg 60
agctgcaagg ccagcggcta caccttcacc gaccagacca tccactggat gcgccaggcc 120
ccaggccagg gcctggagtg gatcggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaact tcaagggcaa ggtcaccatc accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt actactgcgc catcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360
gcctccacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg 420

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ggcacagcgg ccctgggctg cctggtcaag gactacttcc ccgaaccggt gacggtgtcg 480
tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 540
ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg cacccagacc 600
tacatctgca acgtgaatca caagcccagc aacaccaagg tcgacaagag agttgagccc 660
aaatcttgtg acaaaactca cacatgccca ccgtgcccag caccagaagc tgctggggga 720
ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggacccct 780
gaggtcacat gcgtcgtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 840
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 900
agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 960
gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 1020
aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgccccatc ccgggaggag 1080
atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 1140
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 1200
ctggactccg acggctcctt cttcctctac agcaagctca ccgtggacaa gagcaggtgg 1260
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 1320
cagaagagcc tctccctgtc tccgggt                                     1347

<210> 176
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 176
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe Thr Asp Gln
            20                  25                  30
Thr Ile His Trp Met Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Ile
        35                  40                  45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
    50                  55                  60
Lys Gly Lys Val Thr Ile Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65                  70                  75                  80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
                85                  90                  95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
            100                 105                 110
Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
        115                 120                 125
Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
    130                 135                 140
Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
145                 150                 155                 160
Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
                165                 170                 175
Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
            180                 185                 190
Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
        195                 200                 205
Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
    210                 215                 220
Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
225                 230                 235                 240
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
                245                 250                 255
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
            260                 265                 270
Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
        275                 280                 285
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
    290                 295                 300
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305                 310                 315                 320
Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
                325                 330                 335
```

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Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
            340                 345                 350
Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
        355                 360                 365
Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
    370                 375                 380
Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385                 390                 395                 400
Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
                405                 410                 415
Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
            420                 425                 430
Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
        435                 440                 445
Gly
```

<210> 177
<211> 1347
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 177

```
caggtgcagc tggtgcagag cggcgccgag gtgaagaagc caggcagcag cgtgaaggtg 60
agctgcaagg ccagcggctt caccttcacc gaccagacca tccactgggt gcgccaggcc 120
ccaggccagg gcctggagtg gatgggctac atctacccac gcgacgacag cccaaagtac 180
aacgagaact tcaagggcaa ggtcaccctg accgccgaca agagcaccag caccgcctac 240
atggagctga gcagcctgcg cagcgaggac accgccgtgt actactgcgc catcccagac 300
cgcagcggct acgcctggtt catctactgg ggccagggca ccctggtgac cgtgagcagc 360
gcctccacca agggcccatc ggtcttcccc ctggcaccct cctccaagag cacctctggg 420
ggcacagcgg ccctgggctg cctggtcaag gactacttcc ccgaaccggt gacggtgtcg 480
tggaactcag gcgccctgac cagcggcgtg cacaccttcc cggctgtcct acagtcctca 540
ggactctact ccctcagcag cgtggtgacc gtgccctcca gcagcttggg cacccagacc 600
tacatctgca acgtgaatca caagcccagc aacaccaagg tcgacaagag agttgagccc 660
aaatcttgtg acaaaactca cacatgccca ccgtgcccag caccagaagc tgctggggga 720
ccgtcagtct tcctcttccc cccaaaaccc aaggacaccc tcatgatctc ccggacccct 780
gaggtcacat gcgtcgtggt ggacgtgagc cacgaagacc ctgaggtcaa gttcaactgg 840
tacgtggacg gcgtggaggt gcataatgcc aagacaaagc cgcgggagga gcagtacaac 900
agcacgtacc gtgtggtcag cgtcctcacc gtcctgcacc aggactggct gaatggcaag 960
gagtacaagt gcaaggtctc caacaaagcc ctcccagccc ccatcgagaa aaccatctcc 1020
aaagccaaag ggcagccccg agaaccacag gtgtacaccc tgccccatc ccgggaggag 1080
atgaccaaga accaggtcag cctgacctgc ctggtcaaag gcttctatcc cagcgacatc 1140
gccgtggagt gggagagcaa tgggcagccg gagaacaact acaagaccac gcctcccgtg 1200
ctggactccg acggctcctt cttcctctac agcaagctca ccgtggacaa gagcaggtgg 1260
cagcagggga acgtcttctc atgctccgtg atgcatgagg ctctgcacaa ccactacacg 1320
cagaagagcc tctccctgtc tccgggt                                      1347
```

<210> 178
<211> 449
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 178

```
Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys Pro Gly Ser
 1               5                  10                  15
Ser Val Lys Val Ser Cys Lys Ala Ser Gly Phe Thr Phe Thr Asp Gln
            20                  25                  30
Thr Ile His Trp Val Arg Gln Ala Pro Gly Gln Gly Leu Glu Trp Met
        35                  40                  45
Gly Tyr Ile Tyr Pro Arg Asp Asp Ser Pro Lys Tyr Asn Glu Asn Phe
    50                  55                  60
```

Lys Gly Lys Val Thr Leu Thr Ala Asp Lys Ser Thr Ser Thr Ala Tyr
65 70 75 80
Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val Tyr Tyr Cys
85 90 95
Ala Ile Pro Asp Arg Ser Gly Tyr Ala Trp Phe Ile Tyr Trp Gly Gln
100 105 110
Gly Thr Leu Val Thr Val Ser Ser Ala Ser Thr Lys Gly Pro Ser Val
115 120 125
Phe Pro Leu Ala Pro Ser Ser Lys Ser Thr Ser Gly Gly Thr Ala Ala
130 135 140
Leu Gly Cys Leu Val Lys Asp Tyr Phe Pro Glu Pro Val Thr Val Ser
145 150 155 160
Trp Asn Ser Gly Ala Leu Thr Ser Gly Val His Thr Phe Pro Ala Val
165 170 175
Leu Gln Ser Ser Gly Leu Tyr Ser Leu Ser Ser Val Val Thr Val Pro
180 185 190
Ser Ser Ser Leu Gly Thr Gln Thr Tyr Ile Cys Asn Val Asn His Lys
195 200 205
Pro Ser Asn Thr Lys Val Asp Lys Arg Val Glu Pro Lys Ser Cys Asp
210 215 220
Lys Thr His Thr Cys Pro Pro Cys Pro Ala Pro Glu Ala Ala Gly Gly
225 230 235 240
Pro Ser Val Phe Leu Phe Pro Pro Lys Pro Lys Asp Thr Leu Met Ile
245 250 255
Ser Arg Thr Pro Glu Val Thr Cys Val Val Val Asp Val Ser His Glu
260 265 270
Asp Pro Glu Val Lys Phe Asn Trp Tyr Val Asp Gly Val Glu Val His
275 280 285
Asn Ala Lys Thr Lys Pro Arg Glu Glu Gln Tyr Asn Ser Thr Tyr Arg
290 295 300
Val Val Ser Val Leu Thr Val Leu His Gln Asp Trp Leu Asn Gly Lys
305 310 315 320
Glu Tyr Lys Cys Lys Val Ser Asn Lys Ala Leu Pro Ala Pro Ile Glu
325 330 335
Lys Thr Ile Ser Lys Ala Lys Gly Gln Pro Arg Glu Pro Gln Val Tyr
340 345 350
Thr Leu Pro Pro Ser Arg Glu Glu Met Thr Lys Asn Gln Val Ser Leu
355 360 365
Thr Cys Leu Val Lys Gly Phe Tyr Pro Ser Asp Ile Ala Val Glu Trp
370 375 380
Glu Ser Asn Gly Gln Pro Glu Asn Asn Tyr Lys Thr Thr Pro Pro Val
385 390 395 400
Leu Asp Ser Asp Gly Ser Phe Phe Leu Tyr Ser Lys Leu Thr Val Asp
405 410 415
Lys Ser Arg Trp Gln Gln Gly Asn Val Phe Ser Cys Ser Val Met His
420 425 430
Glu Ala Leu His Asn His Tyr Thr Gln Lys Ser Leu Ser Leu Ser Pro
435 440 445
Gly

<210> 179
<211> 642
<212> DNA
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 179
gacatccaga tgacccagag cccaagcagc ctgagcgcca gcgtgggcga ccgcgtgacc 60
atcacctgca aggccagccg cgacgtggcc atcgccgtgg cctggtacca gcagaagcca 120
ggcaaggtgc caaagctgct gctgttctgg gccagcaccc gccacaccgg cgtgccagac 180
cgcttcagcg gcagcggcag cggcaccgac ttcaccctga ccatcagcag cctgcagcca 240
gaggacctgg ccgactacta ctgccaccag tacagcagct acccattcac cttcggccag 300
ggcaccaagc tggagatcaa gcgtactgtg gctgcaccat ctgtcttcat cttcccgcca 360
tctgatgagc agttgaaatc tggaactgcc tctgttgtgt gcctgctgaa taacttctat 420

cccagagagg ccaaagtaca gtggaaggtg gataacgccc tccaatcggg taactcccag 480
gagagtgtca cagagcagga cagcaaggac agcacctaca gcctcagcag caccctgacg 540
ctgagcaaag cagactacga gaaacacaaa gtctacgcct gcgaagtcac ccatcagggc 600
ctgagctcgc ccgtcacaaa gagcttcaac aggggagagt gt 642

<210> 180
<211> 214
<212> PRT
<213> Artificial Sequence

<220>
<223> Humanized sequence.

<400> 180
Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala Ser Val Gly
1 5 10 15
Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Arg Asp Val Ala Ile Ala
20 25 30
Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Val Pro Lys Leu Leu Leu
35 40 45
Phe Trp Ala Ser Thr Arg His Thr Gly Val Pro Asp Arg Phe Ser Gly
50 55 60
Ser Gly Ser Gly Thr Asp Phe Thr Leu Thr Ile Ser Ser Leu Gln Pro
65 70 75 80
Glu Asp Leu Ala Asp Tyr Tyr Cys His Gln Tyr Ser Ser Tyr Pro Phe
85 90 95
Thr Phe Gly Gln Gly Thr Lys Leu Glu Ile Lys Arg Thr Val Ala Ala
100 105 110
Pro Ser Val Phe Ile Phe Pro Pro Ser Asp Glu Gln Leu Lys Ser Gly
115 120 125
Thr Ala Ser Val Val Cys Leu Leu Asn Asn Phe Tyr Pro Arg Glu Ala
130 135 140
Lys Val Gln Trp Lys Val Asp Asn Ala Leu Gln Ser Gly Asn Ser Gln
145 150 155 160
Glu Ser Val Thr Glu Gln Asp Ser Lys Asp Ser Thr Tyr Ser Leu Ser
165 170 175
Ser Thr Leu Thr Leu Ser Lys Ala Asp Tyr Glu Lys His Lys Val Tyr
180 185 190
Ala Cys Glu Val Thr His Gln Gly Leu Ser Ser Pro Val Thr Lys Ser
195 200 205
Phe Asn Arg Gly Glu Cys
210

<210> 181
<211> 189
<212> PRT
<213> Homo sapiens

<400> 181
Met Leu Gly Ser Arg Ala Val Met Leu Leu Leu Leu Pro Trp Thr
1 5 10 15
Ala Gln Gly Arg Ala Val Pro Gly Gly Ser Ser Pro Ala Trp Thr Gln
20 25 30
Cys Gln Gln Leu Ser Gln Lys Leu Cys Thr Leu Ala Trp Ser Ala His
35 40 45
Pro Leu Val Gly His Met Asp Leu Arg Glu Glu Gly Asp Glu Glu Thr
50 55 60
Thr Asn Asp Val Pro His Ile Gln Cys Gly Asp Gly Cys Asp Pro Gln
65 70 75 80
Gly Leu Arg Asp Asn Ser Gln Phe Cys Leu Gln Arg Ile His Gln Gly
85 90 95
Leu Ile Phe Tyr Glu Lys Leu Leu Gly Ser Asp Ile Phe Thr Gly Glu
100 105 110
Pro Ser Leu Leu Pro Asp Ser Pro Val Gly Gln Leu His Ala Ser Leu
115 120 125
Leu Gly Leu Ser Gln Leu Leu Gln Pro Glu Gly His His Trp Glu Thr
130 135 140

```
Gln Gln Ile Pro Ser Leu Ser Pro Ser Gln Pro Trp Gln Arg Leu Leu
145                 150                 155                 160
Leu Arg Phe Lys Ile Leu Arg Ser Leu Gln Ala Phe Val Ala Val Ala
                165                 170                 175
Ala Arg Val Phe Ala His Gly Ala Ala Thr Leu Ser Pro
            180                 185
```