SEQUENCE LISTING

<110> Novartis AG

<120> Novel eukaryotic cells and methods for recombinantly expressing a product of interest

<130> PAT056009-WO-PCT

<150> US 61/919340
<151> 2013-12-20

<160> 60

<170> PatentIn version 3.5

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<213> Homo sapiens

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Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                  10                  15


Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30


Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45


Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60


Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80


Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95


Thr Leu Ser Gly Asn Arg Ile Lys Ser Asn Gln Ile Ser Lys Leu Gln
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100 105 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
115 120 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Asp Gly
130 135 140

Ser Asp Thr Glu Met Ala Ser Gly Ser Asn Arg Thr Pro Val Phe Ser
145 150 155 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
165 170 175

Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
180 185 190

Lys Pro Cys Cys Ser Asn Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
195 200 205

Gln Gly Pro Glu Pro Leu Pro Ile Ser Thr Gln Glu Trp
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Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1 5 10 15

Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
20 25 30

Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
35 40 45

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Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60

Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80

Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95

Thr Leu Ser Gly Asn Arg Met Lys Ser Ser Gln Ile Ser Lys Leu Gln
            100                 105                 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Glu Gly
    130                 135                 140

Ser Asp Thr Glu Met Ala Ser Ser Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175

Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190

Lys Pro Cys Cys Ser Ser Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
        195                 200                 205

Gln Ala Pro Ala Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220
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<212> PRT
<213> Mus musculus

<400> 3

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Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                  10                  15

Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30

Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45

Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60

Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80

Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95

Thr Leu Ser Gly Asn Arg Met Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Glu Gly
    130                 135                 140

Ser Asp Thr Glu Met Ala Ser Ser Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175
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```
Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190


Lys Pro Cys Cys Ser Ser Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
        195                 200                 205


Gln Gly Pro Ala Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220


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<212>  PRT
<213>  Cricetulus griseus

<400>  4

Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                   10                  15


Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30


Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45


Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60


Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Ser His Ser
65                  70                  75                  80


Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95


Thr Leu Ser Gly Asn Arg Met Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110
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Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125


Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Asp Gly
    130                 135                 140


Ser Asp Thr Glu Met Ala Ser Ser Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160


Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175


Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190


Lys Pro Cys Cys Ser Ser Lys Lys Ala Ala Pro Glu Lys Pro Glu Glu
        195                 200                 205


Gln Gly Pro Ala Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220
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<213> Gallus gallus

<400> 5

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Met Phe Gly Phe Arg Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                   10                  15


Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30


Arg Tyr Glu Lys Asp Phe Gln Asn Cys Phe Gly Leu His Glu Ala Arg
        35                  40                  45


Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
```

```
    50                  55                  60

Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80

Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Met Lys
                85                  90                  95

Thr Leu Ser Gly Ser Arg Ile Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Glu Gly
    130                 135                 140

Ser Asp Thr Glu Met Ser Ala Gly Ser Ser Arg Thr Pro Val Phe Ser
145                 150                 155                 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Val Cys Cys Gly Ile
                165                 170                 175

Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190

Lys Pro Cys Cys Ser Asn Lys Lys Ser Ala Thr Glu Lys Pro Glu Gln
        195                 200                 205

Glu Gly Pro Gln Ser Pro Ala Ile Ser Thr Gln Glu Glu Trp
    210                 215                 220
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<210> 6
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<213> Pan troglodytes

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Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                  10                  15

Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30

Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45

Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60

Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80

Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95

Thr Leu Ser Gly Asn Arg Ile Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Asp Gly
    130                 135                 140

Ser Asp Thr Glu Met Ala Ser Gly Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175

Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190
```

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Lys Pro Cys Cys Ser Asn Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
        195                 200                 205


Gln Gly Pro Glu Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220


<210>  7
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<213>  Pongo abelii

<400>  7

Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                   10                  15


Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30


Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45


Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60


Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80


Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95


Thr Leu Ser Gly Asn Arg Ile Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110


Lys Glu Phe Arg Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125
```

```
Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Asp Gly
    130                 135                 140


Ser Asp Thr Glu Met Ala Ser Gly Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160


Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175


Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190


Lys Pro Cys Cys Ser Asn Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
        195                 200                 205


Gln Gly Pro Glu Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220


<210>  8
<211>  221
<212>  PRT
<213>  Bos taurus

<400>  8

Met Phe Gly Phe His Lys Pro Lys Met Tyr Arg Ser Ile Glu Gly Cys
1               5                   10                  15


Cys Ile Cys Arg Ala Lys Ser Ser Ser Ser Arg Phe Thr Asp Ser Lys
            20                  25                  30


Arg Tyr Glu Lys Asp Phe Gln Ser Cys Phe Gly Leu His Glu Thr Arg
        35                  40                  45


Ser Gly Asp Ile Cys Asn Ala Cys Val Leu Leu Val Lys Arg Trp Lys
    50                  55                  60
```

```
Lys Leu Pro Ala Gly Ser Lys Lys Asn Trp Asn His Val Val Asp Ala
65                  70                  75                  80

Arg Ala Gly Pro Ser Leu Lys Thr Thr Leu Lys Pro Lys Lys Val Lys
                85                  90                  95

Thr Leu Ser Gly Asn Arg Ile Lys Ser Asn Gln Ile Ser Lys Leu Gln
            100                 105                 110

Lys Glu Phe Lys Arg His Asn Ser Asp Ala His Ser Thr Thr Ser Ser
        115                 120                 125

Ala Ser Pro Ala Gln Ser Pro Cys Tyr Ser Asn Gln Ser Asp Asp Gly
    130                 135                 140

Ser Asp Thr Glu Met Ala Ser Gly Ser Asn Arg Thr Pro Val Phe Ser
145                 150                 155                 160

Phe Leu Asp Leu Thr Tyr Trp Lys Arg Gln Lys Ile Cys Cys Gly Ile
                165                 170                 175

Ile Tyr Lys Gly Arg Phe Gly Glu Val Leu Ile Asp Thr His Leu Phe
            180                 185                 190

Lys Pro Cys Cys Ser Asn Lys Lys Ala Ala Ala Glu Lys Pro Glu Glu
        195                 200                 205

Gln Gly Pro Glu Pro Leu Pro Ile Ser Thr Gln Glu Trp
    210                 215                 220
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<213> Cricetulus griseus

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ctgtatctgc agagccaagt cctccagctc tcggttcacg gacagtaaac gttatgaaaa 120

ggacttccag agctgttttg ggttgcacga gactcgctca ggagatatct gcaatgcctg 180

tgtgctgctt gtgaaaagat ggaagaagtt gccagcagga tcaaaaaaaa actggaatca 240

tgtgtcacac tcaagggcag gacccagtct aaagacaaca ttgaaaccaa agaaagtgaa 300

aactctatct ggaaacagga tgaaaagcaa ccagatcagt aaactgcaga aggagtttaa 360

acgccacaac tctgatgctc acagtaccac ctcaagtgcc tcgccagccc agtctccctg 420

ctacagtaac cagtcagatg atggctcaga cacagagatg gcttccagct ctaacagaac 480

tccagttttt tccttcttag atcttaccta ctggaaaaga cagaaaatat gttgtgggat 540

catctataag ggccgttttg gggaagtcct catcgacacg catctcttca agccttgctg 600

cagcagtaag aaggcagctc ctgagaagcc tgaggaacag ggaccagcgc ctctgcccat 660

ctctactcag gagtggtgac tgaggttcat gcagaaggga acaaagagca atttaaactt 720

tgaaaagacc acaaagcaac agactgaccc tcctattttt aacttggata cctgctattc 780

tgccaaaaga cattttctag aatagttttt aatgggttac ccatcccccc atccaacaaa 840

ctcggaagcc agttctagct tactgcaaga agagagtgta cataatattt aatatgctga 900

gtatttcata ggaaggctga atgctgctgt aaagtgctct ttaagtcttt ttttttttt 960

aatcccctct aatgaatgag attaggggggg tttcagggga cagagatggg atttgttgtg 1020

tgataaacca tatgtagttt agtctttctg tggagaggca gtggttgggg cattttaaat 1080

ggctggctac acttgttttc ccctcatggt aatttgtcat aactcagtag cacgacctgc 1140

ccctagaagt agttaaagat ttttaaatgc taaggcgttg ccaaggttct gatgattcag 1200

acctgtacta ctgattatta agcaggacag actgag 1236

<210> 10
<211> 1547
<212> PRT
<213> Cricetulus griseus

<400> 10

```
Met Asn Trp Asn Ala Lys Pro Glu Asn Ala Ala Pro Asn Pro Pro Tyr
1               5                   10                  15

Ser Lys Ser Gln Ser Ser Leu Leu Gln Gln Phe Leu Met Pro Ser Thr
            20                  25                  30

Thr Ser Gln Ser Ser Phe Ser Cys Leu Pro His Asn Gln Glu Ala Cys
        35                  40                  45

Ile Tyr Pro Thr Asn Ser Asn Ser Val Ser Gln Pro Leu Leu Asn Val
    50                  55                  60

Arg Ser Phe Ile Asn Pro Pro Ile Ser Val Ser Asn Val His Asn Arg
65                  70                  75                  80

Thr Val Val Ala Ser Gln Thr Ser Val Glu Arg Val Thr Tyr Thr Asn
                85                  90                  95

Val Lys Gly Ala Gln Gln Pro Asn His Asn Leu Gln Thr Val Ser Ser
            100                 105                 110

Gly Val Val Gln Asn Ala Trp Met Asn Ser Thr Met Arg Asn Phe Met
        115                 120                 125

Pro Ser Leu Thr Glu Ala Thr Ile Ser His Lys Pro Asp Gly Gly Pro
    130                 135                 140

Ser Met Pro Tyr Met His Ala Pro Gln Ser His Leu Val Thr Ser Asp
145                 150                 155                 160

Thr Tyr Ser Val Gln Leu Gln Met Thr Pro Ser Asn Ser Val Arg Gly
                165                 170                 175

Pro Val Thr Tyr Gln Gly Asn Tyr Gln Gly Asn Pro Gly Leu Asn His
            180                 185                 190
```

```
Ser Met Ala Gly Glu Leu Gly Trp Val Gln Cys Ala Ser Ser Glu Leu
        195                 200                 205

Thr Tyr Pro Asp Tyr Arg Pro Pro Pro Lys Gln Tyr Pro Tyr Leu Pro
    210                 215                 220

Gln Ser Phe Val Gln Asp Thr Ser Val Gln Lys Gln Asn Phe Val Ser
225                 230                 235                 240

Ser Thr Ser Leu Gln Val Lys Asn Asn Gln Leu Pro Pro Ser Thr Gln
                245                 250                 255

Thr Leu Pro Ser Lys Arg Pro Val Pro Val Ser Ser Tyr Gln Tyr Ala
            260                 265                 270

Ala Glu Thr Ser Lys Arg Leu Pro Pro Pro Pro Tyr Ser Cys Arg Tyr
        275                 280                 285

Gly Ser Gln His Val Gln Asn Ser Gln Ser Val Ser Arg His Leu Pro
    290                 295                 300

Val Glu Val Pro Gln Ser Ser Glu Met His Ser Ser Glu Lys Lys Lys
305                 310                 315                 320

Asp Ala Tyr Lys Val Phe Gln Gln Gln Trp Gln Ser Thr Ser Lys Asn
                325                 330                 335

Val Ser Thr Ile Gly Lys Phe Cys Glu Leu Lys Ile Asn Thr Lys Gln
            340                 345                 350

Ser Tyr Asn Asp Ser Ala Gly Ser Ser Gly Asp Gly Val His Thr Leu
        355                 360                 365

Val Gln Asn Asn Gln Glu Glu Arg Lys Tyr Ser Tyr Asn Pro Ser Thr
    370                 375                 380
```

```
Asn Gln Ile Leu Asp Thr Asn Val Thr Lys Glu Lys Leu Val Arg Asp
385                 390                 395                 400

Ile Lys Ser Leu Val Glu Ile Lys Lys Lys Phe Ser Glu Leu Ala Arg
                405                 410                 415

Lys Ile Lys Ile Asn Lys Lys Leu Leu Met Ala Ala Gly Cys Ser Lys
            420                 425                 430

Thr Ala Asn Thr Ser Tyr Thr Glu Pro Thr Arg His Ser Glu Phe Ser
        435                 440                 445

Ala Lys Glu Met Ser Ala Lys Arg Asp Asn Gln Cys Ser Met Glu Leu
    450                 455                 460

Leu Ala Thr Cys Leu Ser Leu Trp Lys Asn Gln Pro Pro Lys Thr Thr
465                 470                 475                 480

Glu Glu Asn Val Ser Lys Pro Leu Glu Glu Lys Gln Tyr Asn Ala Ser
                485                 490                 495

Arg Thr Ser Thr Thr Ala Val Gly Pro Ser Asn Pro Met Asn Glu Val
            500                 505                 510

His Val Lys Asn Phe Cys Ser Gly Val Arg Asn Ser Gln Lys Ile Thr
        515                 520                 525

Thr Ser Ser Gln Thr Val Leu Ser Val Leu Thr Pro Val Tyr Asp Ser
    530                 535                 540

Ser Asp Val Ala Val Gly Lys Gly Thr Glu Leu Gln Ile Ala Val Val
545                 550                 555                 560

Ser Pro Leu Ile Leu Ser Asp Val Ser Thr Val Pro Gly Lys Glu Leu
                565                 570                 575
```

```
Ala Pro Glu Val Val Ser Glu Thr Val Tyr Pro Val Val Lys Glu Gly
            580                 585                 590

Ser Val Cys Ser Leu Gln Asn Gln Gln Ala Glu Asn Ala Thr Val Thr
        595                 600                 605

Ala Gly Leu Pro Phe Asp Val Ile Arg Ala Val Ala Ser Ala Thr Val
    610                 615                 620

Ser Ala Glu Leu Ser Leu Pro Gly His Lys Glu Lys Gln His Lys Pro
625                 630                 635                 640

Thr Gln Ser Asp Leu Asp Ile Ala Asp Gly Ser Leu Gly Lys His Ser
                645                 650                 655

Pro Gln Gly Ala Glu Ala Leu Pro Asn Pro Arg Asp Ser Thr Ile Val
            660                 665                 670

Ser Gly Pro Ile Leu Gln Ile Glu Ser Ile Cys Ser Leu Ala Glu Gly
        675                 680                 685

Asp Val Ser Tyr Asn Ser Gln Ile Ala Glu Ile Phe Asn Ser Val Gln
    690                 695                 700

Asn Glu Pro Gln Lys Pro Ser Pro Asp Gln Gln Val Ile Asn Ser Gln
705                 710                 715                 720

Gln Glu Glu Gln Val Asp Lys Val Ala Glu Asn Lys Asp Leu Ser Phe
                725                 730                 735

Leu Lys Asp Lys Cys Met Gln Cys Thr Asp Val Pro His Glu Val Thr
            740                 745                 750

Glu Gln Pro Glu Pro Leu Gln Pro Leu Glu Thr Thr Ser Asp Glu Tyr
        755                 760                 765
```

```
Val Glu Ala Asn Gly Glu Ile Leu Glu Glu Ser Ser Lys Glu Asn Pro
    770                 775                 780

Gly Glu Lys Glu Met Thr Lys Asp Ile Leu Cys Ser Pro Ala Ala Val
785                 790                 795                 800

Gln Gln Asp Pro Gln Pro Gln Glu Ile Asp Thr Ala Ser Ser Lys Ser
                805                 810                 815

Gly His Ser Phe Ser Thr Val Asn Glu Ile Asn Asp Glu Asn Glu Pro
            820                 825                 830

Val Ser Tyr Leu His Asp Gln Leu Leu Glu Leu Leu Lys Glu Phe Pro
        835                 840                 845

Tyr Gly Ile Glu Thr Ile Ala Arg Pro Glu Val Tyr Val Gly Gln Gln
    850                 855                 860

Lys Thr His Glu Ile Leu Glu Asn Gln Thr Gly Ser Lys Thr Gly Asn
865                 870                 875                 880

Val Ser Gly Asp Asn Thr Asp Gln Ile Lys Ile Thr Val Leu Asn Ser
                885                 890                 895

Glu Gln Ile Lys Glu Leu Phe Pro Glu Glu Asp Gln Pro Cys Asp Val
            900                 905                 910

Asp Lys Leu Ala Glu Pro Glu Asn Thr Lys Ile Ile Ala Glu Val Lys
        915                 920                 925

Ser Leu Cys Asp Ser Gln Val Pro Arg Glu Glu Ser His Asn Pro Gly
    930                 935                 940

Met Leu Asp Leu Glu Lys Asp Lys Ile His Cys Cys Ala Leu Gly Trp
945                 950                 955                 960
```

```
Leu Ser Met Val Tyr Glu Gly Val Pro Gln Cys Gln Cys Ser Ser Met
               965                 970                 975


Glu Glu Lys Glu Lys Asp Gln Cys Ser Leu Glu Ile Ser Asn Cys Lys
            980                 985                 990


Gln Gly Glu Gln Ala Cys Asn Ser  Gly Ile Thr Ile Phe  Glu Ile Asn
        995                 1000                1005


Pro Ile  Ser Asn Asn Ser Lys  Ser Pro Leu Ile Gln  Glu Ser Glu
    1010                1015                1020


Lys Gly  His Phe Ser Asp Ile  His Gly Glu Lys Ile  Lys Thr Ser
    1025                1030                1035


Glu Thr  Lys Asn Ser Ser Ser  Pro Arg Val Glu Gln  Glu Leu Thr
    1040                1045                1050


Gly His  Phe Ser Met Lys Cys  Tyr Gln Lys Asp Lys  Ser Thr Thr
    1055                1060                1065


Lys Gln  Asp Ser Ser Leu Lys  Thr Glu Gln Lys Ile  Lys Asn Leu
    1070                1075                1080


Ser Ser  Lys Cys Asp Lys Pro  Asn Pro Leu Lys Ser  Ser Lys Ile
    1085                1090                1095


Pro Thr  Pro Glu Thr Phe Asn  Val Val Thr Ser Asn  Ser Asp Lys
    1100                1105                1110


Asn Met  Pro Ala Phe Ser Lys  Gln Asp Ser Gln Gly  Ser Leu Gln
    1115                1120                1125


Lys Lys  His Leu Phe Gln Asp  Ser Asp Pro Val Lys  Gly His Val
    1130                1135                1140
```

```
Trp Leu  Leu Pro Asn Lys Asp  Pro Arg Arg Arg Asn  Thr Phe Leu
    1145                1150                1155

Val Gln  Ser Val Ser Pro Glu  Lys Lys Lys Leu Lys  Phe Lys Ser
    1160                1165                1170

Gly Ser  Ser Lys Leu Lys Tyr  Phe Glu Lys Arg Lys  Met Asp His
    1175                1180                1185

Leu Leu  Ile Ser Asp Val Glu  Ile Lys Lys Lys Lys  Tyr Glu Lys
    1190                1195                1200

Gln Glu  Gln Asn Lys Asn Ala  Gly Gly Thr Leu Lys  Leu Cys Ser
    1205                1210                1215

Thr Leu  Thr Glu Pro Asn Glu  Arg Ala Cys Ala Lys  Glu Lys Ile
    1220                1225                1230

Val Thr  Asn Ser Glu Pro Ser  Asp Ser Lys Gly Ser  Ser Ser Lys
    1235                1240                1245

Ser Thr  Arg Val Ile Thr Val  Gln Glu Tyr Leu Gln  Arg Lys Lys
    1250                1255                1260

Asp Lys  His Val Ile Gly Asn  Asn Ala Ser Lys Asn  Ile Cys Val
    1265                1270                1275

Glu Asn  Val Pro Cys Asp Ser  Glu Pro Met Lys Ser  Ser Lys His
    1280                1285                1290

Ser Ala  Ser Pro Ser Leu Gly  Lys Leu Ile Glu Gly  Gln Gly Val
    1295                1300                1305

Ser Ala  Glu Thr Leu Lys Glu  Val Glu His Asn Ser  Thr Ser His
    1310                1315                1320
```

```
Gly Lys  Asn Leu Lys Thr His  Arg Ser Glu Glu Thr  Arg Pro Tyr
    1325                1330                1335

Ser Val  Ser Asn Ser Lys Glu  Lys Phe Tyr Arg Thr  His Pro Asp
    1340                1345                1350

Lys Ser  Tyr Ile Asp Lys Ala  Lys Leu Glu Arg Leu  Thr Ser Met
    1355                1360                1365

Ser Ser  Lys Ser Ser Gln Leu  Gln Val Lys Glu Lys  Arg Lys Gln
    1370                1375                1380

Tyr Leu  Asn Arg Val Ala Phe  Lys Cys Thr Glu Gln  Glu Ser Ile
    1385                1390                1395

Cys Leu  Thr Lys Leu Asp Ser  Ala Ser Lys Lys Leu  Ser Lys Glu
    1400                1405                1410

Lys Glu  Lys Ser Thr Ala Cys  Ala Pro Met Thr Lys  Asp Tyr Thr
    1415                1420                1425

His Lys  Pro Met Leu Glu Phe  Lys Leu Cys Pro Asp  Val Leu Leu
    1430                1435                1440

Lys Asn  Thr Ser Ser Ile Asp  Lys Gly Asp Asp Pro  Arg Pro Gly
    1445                1450                1455

Pro Glu  Lys Glu Arg Ala Pro  Val Gln Val Ser Gly  Ile Lys Thr
    1460                1465                1470

Thr Lys  Glu Asp Trp Leu Lys  Cys Ile Pro Thr Arg  Thr Lys Met
    1475                1480                1485

Pro Glu  Ser Ser Glu Gln Thr  Asp Arg Ala Asp Ser  Arg Leu Ser
    1490                1495                1500
```

```
Lys Arg  Ser Phe Ser Ala Asp  Glu Phe Glu Thr Leu  Gln Asn Pro
    1505                 1510                 1515


Val Lys  Asp Ser Asn Val Met  Phe Arg Thr Phe Lys  Lys Met Tyr
    1520                 1525                 1530


Leu Glu  Lys Arg Ser Arg Ser  Leu Gly Ser Ser Pro  Val Lys
    1535                 1540                 1545


<210>  11
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<212>  PRT
<213>  Cricetinae gen. sp.


<220>
<221>  UNSURE
<222>  (879)..(879)

<400>  11

Met Asn Trp Asn Ala Lys Pro Glu Asn Ala Ala Pro Asn Pro Pro Tyr
1               5                   10                  15


Ser Lys Ser Gln Ser Ser Leu Leu Gln Gln Phe Leu Met Pro Ser Thr
            20                  25                  30


Thr Ser Gln Ser Ser Phe Ser Cys Leu Pro His Asn Gln Glu Ala Cys
        35                  40                  45


Ile Tyr Pro Thr Asn Ser Asn Ser Val Ser Gln Pro Leu Leu Asn Val
    50                  55                  60


Arg Ser Phe Ile Asn Pro Pro Ile Ser Val Ser Asn Val His Asn Arg
65                  70                  75                  80


Thr Val Val Ala Ser Gln Thr Ser Val Glu Arg Val Thr Tyr Thr Asn
                85                  90                  95
```

```
Val Lys Gly Ala Gln Gln Pro Asn His Asn Leu Gln Thr Val Ser Ser
            100                 105                 110

Gly Val Val Gln Asn Ala Trp Met Asn Ser Thr Met Arg Asn Phe Met
        115                 120                 125

Pro Ser Leu Thr Glu Ala Thr Ile Ser His Lys Pro Asp Gly Gly Pro
    130                 135                 140

Ser Met Pro Tyr Met His Ala Pro Gln Ser His Leu Val Thr Ser Asp
145                 150                 155                 160

Thr Tyr Ser Val Gln Leu Gln Met Thr Pro Ser Asn Ser Val Arg Gly
                165                 170                 175

Pro Val Thr Tyr Gln Gly Asn Tyr Gln Gly Asn Pro Gly Leu Asn His
            180                 185                 190

Ser Met Ala Gly Glu Leu Gly Trp Val Gln Cys Ala Ser Ser Glu Leu
        195                 200                 205

Thr Tyr Pro Asp Tyr Arg Pro Pro Pro Lys Gln Tyr Pro Tyr Leu Pro
    210                 215                 220

Gln Ser Phe Val Gln Asp Thr Ser Val Gln Lys Gln Asn Phe Val Ser
225                 230                 235                 240

Ser Thr Ser Leu Gln Val Lys Asn Asn Gln Leu Pro Pro Ser Thr Gln
                245                 250                 255

Thr Leu Pro Ser Lys Arg Pro Val Pro Val Ser Ser Tyr Gln Tyr Ala
            260                 265                 270

Ala Glu Thr Ser Lys Arg Leu Pro Pro Pro Pro Tyr Ser Cys Arg Tyr
        275                 280                 285
```

```
Gly Ser Gln His Val Gln Asn Ser Gln Ser Val Ser Arg His Leu Pro
    290                 295                 300

Val Glu Val Pro Gln Ser Ser Glu Met His Ser Ser Glu Lys Lys Lys
305                 310                 315                 320

Asp Ala Tyr Lys Val Phe Gln Gln Gln Trp Gln Ser Thr Ser Lys Asn
                325                 330                 335

Val Ser Thr Ile Gly Lys Phe Cys Glu Leu Lys Ile Asn Thr Lys Gln
            340                 345                 350

Ser Tyr Asn Asp Ser Ala Gly Ser Ser Gly Asp Gly Val His Thr Leu
        355                 360                 365

Val Gln Asn Asn Gln Glu Glu Arg Lys Tyr Ser Tyr Asn Pro Ser Thr
    370                 375                 380

Asn Gln Ile Leu Asp Thr Asn Val Thr Lys Glu Lys Leu Val Arg Asp
385                 390                 395                 400

Ile Lys Ser Leu Val Glu Ile Ser Trp Ala Met Val Ala His Ser Glu
                405                 410                 415

Phe Ser Ala Lys Glu Met Ser Ala Lys Arg Asp Asn Gln Cys Ser Met
            420                 425                 430

Glu Leu Leu Ala Thr Cys Leu Ser Leu Trp Lys Asn Gln Pro Pro Lys
        435                 440                 445

Thr Thr Glu Glu Asn Val Ser Lys Pro Leu Glu Glu Lys Gln Tyr Asn
    450                 455                 460

Ala Ser Arg Thr Ser Thr Thr Ala Val Gly Pro Ser Asn Pro Met Asn
465                 470                 475                 480
```

```
Glu Val His Val Lys Asn Phe Cys Ser Gly Val Arg Asn Ser Gln Lys
                485                 490                 495

Ile Thr Thr Ser Ser Gln Thr Val Leu Ser Val Leu Thr Pro Val Tyr
            500                 505                 510

Asp Ser Ser Asp Val Ala Val Gly Lys Gly Thr Glu Leu Gln Ile Ala
        515                 520                 525

Val Val Ser Pro Leu Ile Leu Ser Asp Val Ser Thr Val Pro Gly Lys
    530                 535                 540

Glu Leu Ala Pro Glu Val Val Ser Glu Thr Val Tyr Pro Val Val Lys
545                 550                 555                 560

Glu Gly Ser Val Cys Ser Leu Gln Asn Gln Gln Ala Glu Asn Ala Thr
                565                 570                 575

Val Thr Ala Gly Leu Pro Phe Asp Val Ile Arg Ala Val Ala Ser Ala
            580                 585                 590

Thr Val Ser Ala Glu Leu Ser Leu Pro Gly His Lys Glu Lys Gln His
        595                 600                 605

Lys Pro Thr Gln Thr Asp Leu Asp Thr Ala Asp Gly Ser Leu Gly Lys
    610                 615                 620

His Ser Pro Gln Gly Ala Glu Ala Leu Pro Asn Pro Arg Asp Ser Thr
625                 630                 635                 640

Ile Val Ser Gly Pro Ile Leu Gln Ile Glu Ser Ile Cys Ser Leu Ala
                645                 650                 655

Glu Gly Asp Val Ser Tyr Asn Ser Gln Ile Ala Glu Ile Phe Asn Ser
            660                 665                 670
```

```
Val Gln Asn Glu Pro Gln Lys Pro Ser Pro Asp Gln Gln Val Ile Asn
        675                 680                 685

Ser Gln Gln Glu Glu Gln Val Asp Lys Val Ala Glu Asn Lys Asp Leu
    690                 695                 700

Ser Phe Leu Lys Asp Lys Cys Met Gln Cys Thr Asp Val Pro His Glu
705                 710                 715                 720

Val Thr Glu Gln Pro Glu Pro Leu Gln Pro Leu Glu Thr Thr Ser Asp
                725                 730                 735

Glu Tyr Val Glu Ala Asn Gly Glu Ile Leu Glu Glu Ser Ser Lys Glu
            740                 745                 750

Asn Pro Gly Glu Lys Glu Met Thr Lys Asp Ile Leu Cys Ser Pro Ala
        755                 760                 765

Ala Val Gln Gln Asp Pro Gln Pro Gln Glu Ile Asp Thr Ala Ser Ser
    770                 775                 780

Lys Ser Gly His Ser Phe Ser Thr Val Asn Glu Ile Asn Asp Glu Asn
785                 790                 795                 800

Glu Pro Val Ser Tyr Leu His Asp Gln Leu Leu Glu Leu Leu Lys Glu
                805                 810                 815

Phe Pro Tyr Gly Ile Glu Thr Ile Ala Arg Pro Glu Val Tyr Val Gly
            820                 825                 830

Gln Gln Lys Thr His Glu Ile Leu Glu Asn Gln Thr Gly Ser Lys Thr
        835                 840                 845

Gly Asn Val Ser Gly Asp Asn Thr Asp Gln Ile Lys Ile Thr Val Leu
    850                 855                 860
```

```
Asn Ser Glu Gln Ile Lys Glu Leu Phe Pro Glu Glu Asp Gln Xaa Val
865                 870                 875                 880


Asp Lys Leu Ala Glu Pro Glu Asn Thr Lys Ile Ile Ala Glu Val Lys
                885                 890                 895


Ser Leu Cys Asp Ser Gln Val Pro Arg Glu Glu Ser His Asn Pro Gly
            900                 905                 910


Met Leu Asp Leu Glu Lys Asp Lys Ile His Cys Cys Ala Leu Gly Trp
        915                 920                 925


Leu Ser Met Val Tyr Glu Gly Val Pro Gln Cys Gln Cys Ser Ser Met
    930                 935                 940


Glu Glu Lys Glu Lys Asp Gln Cys Ser Leu Glu Ile Ser Asn Cys Lys
945                 950                 955                 960


Gln Gly Glu Gln Ala Cys Asn Ser Gly Ile Thr Ile Phe Glu Ile Asn
                965                 970                 975


Pro Ile Ser Asn Asn Ser Lys Ser Pro Leu Ile Gln Glu Ser Glu Lys
            980                 985                 990


Gly His Phe Ser Asp Ile His Gly  Glu Lys Ile Lys Thr  Ser Glu Thr
        995                 1000                1005


Lys Asn  Ser Ser Ser Pro Arg  Val Glu Gln Glu Leu  Thr Gly His
    1010                1015                1020


Phe Ser  Met Lys Cys Tyr Gln  Lys Asp Lys Ser Thr  Thr Lys Gln
    1025                1030                1035


Asp Ser  Ser Leu Lys Thr Glu  Gln Lys Ile Lys Asn  Leu Ser Ser
    1040                1045                1050
```

```
Lys Cys  Asp Lys Pro Asn Pro  Leu Lys Ser Ser Lys  Ile Pro Thr
    1055                1060                1065

Pro Glu  Thr Phe Asn Val Val  Thr Ser Asn Ser Asp  Lys Asn Met
    1070                1075                1080

Pro Ala  Phe Ser Lys Gln Asp  Ser Gln Gly Ser Leu  Gln Lys Lys
    1085                1090                1095

His Leu  Phe Gln Asp Ser Asp  Pro Val Lys Gly His  Val Trp Leu
    1100                1105                1110

Leu Pro  Asn Lys Asp Pro Arg  Arg Arg Asn Thr Phe  Leu Val Gln
    1115                1120                1125

Ser Val  Ser Pro Glu Lys Lys  Lys Leu Lys Phe Lys  Ser Gly Ser
    1130                1135                1140

Ser Lys  Leu Lys Tyr Phe Glu  Lys Arg Lys Met Asp  His Leu Leu
    1145                1150                1155

Ile Ser  Asp Val Glu Ile Lys  Lys Lys Lys Tyr Glu  Lys Gln Glu
    1160                1165                1170

Gln Asn  Lys Asn Ala Gly Gly  Thr Leu Lys Leu Cys  Ser Thr Leu
    1175                1180                1185

Thr Glu  Pro Asn Glu Arg Ala  Cys Ala Lys Glu Lys  Ile Val Thr
    1190                1195                1200

Asn Ser  Glu Pro Ser Asp Ser  Lys Gly Ser Ser Ser  Lys Ser Thr
    1205                1210                1215

Arg Val  Ile Thr Val Gln Glu  Tyr Leu Gln Arg Lys  Lys Asp Lys
    1220                1225                1230
```

```
His Val  Ile Gly Asn Asn Ala  Ser Lys Asn Ile Cys  Val Glu Asn
    1235                1240                1245


Val Pro  Cys Asp Ser Glu Pro  Met Lys Ser Ser Lys  His Ser Ala
    1250                1255                1260


Ser Pro  Ser Leu Gly Lys Leu  Ile Glu Gly Gln Gly  Val Ser Ala
    1265                1270                1275


Glu Thr  Leu Lys Glu Val Glu  His Asn Ser Ser Ser  His Gly Lys
    1280                1285                1290


Asn Leu  Lys Thr His Arg Ser  Glu Glu Thr Arg Pro  Tyr Ser Val
    1295                1300                1305


Ser Asn  Ser Lys Glu Lys Phe  Tyr Arg Thr His Pro  Asp Lys Ser
    1310                1315                1320


Tyr Ile  Asp Lys Ala Lys Leu  Glu Arg Leu Thr Ser  Met Ser Ser
    1325                1330                1335


Lys Ser  Ser Gln Leu Gln Val  Lys Glu Lys Arg Lys  Gln Tyr Leu
    1340                1345                1350


Asn Arg  Val Ala Phe Lys Cys  Thr Glu Gln Glu Ser  Ile Cys Leu
    1355                1360                1365


Thr Lys  Leu Asp Ser Ala Ser  Lys Lys Leu Ser Lys  Glu Lys Glu
    1370                1375                1380


Lys Ser  Thr Ala Cys Ala Pro  Met Thr Lys Asp Tyr  Thr His Lys
    1385                1390                1395


Pro Met  Leu Glu Phe Lys Leu  Cys Pro Asp Val Leu  Leu Lys Asn
    1400                1405                1410
```

```
Thr Ser  Ser Ile Asp Lys Gly  Asp Asp Pro Arg Pro  Gly Pro Glu
    1415                1420                1425


Lys Glu  Arg Ala Pro Val Gln  Val Ser Gly Ile Lys  Thr Thr Lys
    1430                1435                1440


Glu Asp  Trp Leu Lys Cys Ile  Pro Thr Arg Thr Lys  Met Pro Glu
    1445                1450                1455


Ser Ser  Glu Gln Thr Asp Arg  Ala Asp Ser Arg Leu  Ser Lys Arg
    1460                1465                1470


Ser Phe  Ser Ala Asp Glu Phe  Glu Thr Leu Gln Asn  Pro Val Lys
    1475                1480                1485


Asp Ser  Asn Val Met Phe Arg  Thr Phe Lys Lys Met  Tyr Leu Glu
    1490                1495                1500


Lys Arg  Ser Arg Ser Leu Gly  Ser Ser Pro Val Lys
    1505                1510                1515


<210>  12
<211>  1747
<212>  PRT
<213>  Homo sapiens

<400>  12

Met Asn Trp Asn Glu Lys Pro Lys Ser Ala Thr Leu Pro Pro Leu Tyr
1               5                   10                  15


Pro Lys Ser Gln Pro Pro Phe Leu His Gln Ser Leu Ile Asn Gln Ile
            20                  25                  30


Thr Thr Thr Ser Gln Ser Ser Phe Ser Tyr Pro Gly Ser Asn Gln Glu
        35                  40                  45


Ala Cys Met Tyr Pro Gly Asn Ser Asn Pro Ile Ser Gln Pro Leu Leu
```

50 55 60

Asn Ile Gln Asn Tyr Pro Gln Gln Ile Ser Val Ser Asp Met His Asn
65 70 75 80

Gly Thr Val Val Ala Ser His Thr Ser Val Glu Arg Ile Thr Tyr Ala
85 90 95

Asn Val Asn Gly Pro Lys Gln Leu Thr His Asn Leu Gln Met Ser Ser
100 105 110

Gly Val Thr Gln Asn Val Trp Leu Asn Ser Pro Met Arg Asn Pro Val
115 120 125

His Ser His Ile Gly Ala Thr Val Ser His Gln Thr Asp Phe Gly Ala
130 135 140

Asn Val Pro Asn Met Pro Ala Leu Gln Ser Gln Leu Ile Thr Ser Asp
145 150 155 160

Thr Tyr Ser Met Gln Met Gln Met Ile Pro Ser Asn Ser Thr Arg Leu
165 170 175

Pro Val Ala Tyr Gln Gly Asn Gln Gly Leu Asn Gln Ser Phe Ser Glu
180 185 190

Gln Gln Val Asp Trp Thr Gln Gln Cys Ile Ser Lys Gly Leu Thr Tyr
195 200 205

Pro Asp Tyr Arg Pro Pro Pro Lys Leu Tyr Arg Tyr Ser Pro Gln Ser
210 215 220

Phe Leu Pro Asp Ser Thr Ile Gln Lys Gln Asn Phe Ile Pro His Thr
225 230 235 240

Ser Leu Gln Val Lys Asn Ser Gln Leu Leu Asn Ser Val Leu Thr Leu

```
                245                 250                 255

Pro Ser Arg Gln Thr Ser Ala Val Pro Ser Gln Gln Tyr Ala Thr Gln
            260                 265                 270

Thr Asp Lys Arg Pro Pro Pro Pro Pro Tyr Asn Cys Arg Tyr Gly Ser
        275                 280                 285

Gln Pro Leu Gln Ser Thr Gln His Ile Thr Lys His Leu Ser Met Glu
    290                 295                 300

Val Pro Gln Ser Arg Glu Met Leu Ser Ser Glu Ile Arg Thr Ser Phe
305                 310                 315                 320

Gln Gln Gln Trp Gln Asn Pro Asn Glu Asn Val Ser Thr Ile Gly Asn
                325                 330                 335

Phe Thr Asn Leu Lys Val Asn Thr Asn Ser Lys Gln Pro Phe Asn Ser
            340                 345                 350

Pro Ile Arg Ser Ser Val Asp Gly Val Gln Thr Leu Ala Gln Thr Asn
        355                 360                 365

Glu Glu Lys Ile Met Asp Ser Cys Asn Pro Thr Ser Asn Gln Val Leu
    370                 375                 380

Asp Thr Ser Val Ala Lys Glu Lys Leu Val Arg Asp Ile Lys Thr Leu
385                 390                 395                 400

Val Glu Ile Lys Gln Lys Phe Ser Glu Leu Ala Arg Lys Ile Lys Ile
                405                 410                 415

Asn Lys Asp Leu Leu Met Ala Ala Gly Cys Ile Lys Met Thr Asn Thr
            420                 425                 430

Ser Tyr Ser Glu Pro Ala Gln Asn Ser Lys Leu Ser Leu Lys Gln Thr
```

```
        435                 440                 445

Ala Lys Ile Gln Ser Gly Pro Gln Ile Thr Pro Val Met Pro Glu Asn
    450                 455                 460

Ala Glu Arg Gln Thr Pro Thr Val Val Glu Ser Ala Glu Thr Asn Lys
465                 470                 475                 480

Thr Gln Cys Met Leu Asn Ser Asp Ile Gln Glu Val Asn Cys Arg Arg
                485                 490                 495

Phe Asn Gln Val Asp Ser Val Leu Pro Asn Pro Val Tyr Ser Glu Lys
            500                 505                 510

Arg Pro Met Pro Asp Ser Ser His Asp Val Lys Val Leu Thr Ser Lys
        515                 520                 525

Thr Ser Ala Val Glu Met Thr Gln Ala Val Leu Asn Thr Gln Leu Ser
    530                 535                 540

Ser Glu Asn Val Thr Lys Val Glu Gln Asn Ser Pro Ala Val Cys Glu
545                 550                 555                 560

Thr Ile Ser Val Pro Lys Ser Met Ser Thr Glu Glu Tyr Lys Ser Lys
                565                 570                 575

Ile Gln Asn Glu Asn Met Leu Leu Leu Ala Leu Leu Ser Gln Ala Arg
            580                 585                 590

Lys Thr Gln Lys Thr Val Leu Lys Asp Ala Asn Gln Thr Ile Gln Asp
        595                 600                 605

Ser Lys Pro Asp Ser Cys Glu Met Asn Pro Asn Thr Gln Met Thr Gly
    610                 615                 620

Asn Gln Leu Asn Leu Lys Asn Met Glu Thr Pro Ser Thr Ser Asn Val
```

625 630 635 640

Ser Gly Arg Val Leu Asp Asn Ser Phe Cys Ser Gly Gln Glu Ser Ser
645 650 655

Thr Lys Gly Met Pro Ala Lys Ser Asp Ser Ser Cys Ser Met Glu Val
660 665 670

Leu Ala Thr Cys Leu Ser Leu Trp Lys Lys Gln Pro Ser Asp Thr Ala
675 680 685

Lys Glu Lys Glu Cys Asp Lys Leu Arg Thr Asn Thr Thr Ala Val Gly
690 695 700

Ile Ser Lys Pro Ala Asn Ile His Val Lys Ser Pro Cys Ser Val Val
705 710 715 720

Gly Asn Ser Asn Ser Gln Asn Lys Ile Ser Asn Pro Ser Gln Gln Thr
725 730 735

Ala Leu Ser Met Val Met His Asn Tyr Glu Ser Ser Gly Ile Asn Ile
740 745 750

Thr Lys Gly Thr Glu Leu Gln Ile Ala Val Val Ser Pro Leu Val Leu
755 760 765

Ser Glu Val Lys Thr Leu Ser Val Lys Gly Ile Thr Pro Ala Val Leu
770 775 780

Pro Glu Thr Val Tyr Pro Val Ile Lys Glu Gly Ser Val Cys Ser Leu
785 790 795 800

Gln Asn Gln Leu Ala Glu Asn Ala Lys Ala Thr Ala Ala Leu Lys Val
805 810 815

Asp Val Ser Gly Pro Val Ala Ser Thr Ala Thr Ser Thr Lys Ile Phe

820 825 830

Pro Leu Thr Gln Lys Glu Lys Gln Asn Glu Ser Thr Asn Gly Asn Ser
835 840 845

Glu Val Thr Pro Asn Val Asn Gln Gly Lys His Asn Lys Leu Glu Ser
850 855 860

Ala Ile His Ser Pro Met Asn Asp Gln Gln Ile Ser Gln Glu Ser Arg
865 870 875 880

Asn Ser Thr Val Val Ser Ser Asp Thr Leu Gln Ile Asp Asn Ile Cys
885 890 895

Ser Leu Val Glu Gly Asp Thr Ser Tyr Asn Ser Gln Ile Ala Lys Ile
900 905 910

Phe Ser Ser Leu Pro Leu Lys Met Val Glu Pro Gln Lys Pro Ser Leu
915 920 925

Pro Asn Gln Gln Gly Ile Gly Ser Arg Glu Pro Glu Lys Gln Leu Asp
930 935 940

Asn Thr Thr Glu Asn Lys Asp Phe Gly Phe Gln Lys Asp Lys Pro Val
945 950 955 960

Gln Cys Thr Asp Val Ser His Lys Ile Cys Asp Gln Ser Lys Ser Glu
965 970 975

Pro Pro Leu Glu Ser Ser Phe Asn Asn Leu Glu Thr Asn Arg Val Ile
980 985 990

Leu Glu Lys Ser Ser Leu Glu His Ala Thr Glu Lys Ser Thr Ala Asn
995 1000 1005

Asp Thr Cys Ser Ser Ala Ala Ile Gln Glu Asp Ile Tyr Pro Gln

```
    1010                1015                1020

Glu Ile  Asp Ala Ser Ser Asn  Tyr Thr Pro Gln Asp  Pro Ala Arg
    1025                1030                1035

Asn Glu  Ile His Ser Asp Lys  Ala Pro Val Leu Tyr  Leu His Asp
    1040                1045                1050

Gln Leu  Ser Glu Leu Leu Lys  Glu Phe Pro Tyr Gly  Ile Glu Ala
    1055                1060                1065

Val Asn  Thr Arg Glu Gly Ser  Val Gly Gln Gln Thr  Thr Tyr Gln
    1070                1075                1080

Thr Ser  Glu Asp Gln Thr Ala  Asp Lys Thr Ser Ser  Asp Ser Lys
    1085                1090                1095

Asp Pro  Ala Asp Gln Ile Gln  Ile Thr Ile Leu Ser  Ser Glu Gln
    1100                1105                1110

Met Lys  Glu Ile Phe Pro Glu  Gln Asp Asp Gln Pro  Tyr Val Val
    1115                1120                1125

Asp Lys  Leu Ala Glu Pro Gln  Lys Glu Glu Pro Ile  Thr Glu Val
    1130                1135                1140

Val Ser  Gln Cys Asp Leu Gln  Ala Pro Ala Ala Gly  Gln Ser Arg
    1145                1150                1155

Asp Ser  Val Ile Leu Asp Ser  Glu Lys Asp Asp Ile  His Cys Cys
    1160                1165                1170

Ala Leu  Gly Trp Leu Ser Met  Val Tyr Glu Gly Val  Pro Gln Cys
    1175                1180                1185

Gln Cys  Asn Ser Ile Lys Asn  Ser Ser Ser Glu Glu  Glu Lys Gln
```

```
    1190                1195                1200

Lys Glu  Gln Cys Ser Pro Leu  Asp Thr Asn Ser Cys  Lys Gln Gly
    1205                1210                1215

Glu Arg  Thr Ser Asp Arg Asp  Val Thr Val Val Gln  Phe Lys Ser
    1220                1225                1230

Leu Val  Asn Asn Pro Lys Thr  Pro Pro Asp Gly Lys  Ser His Phe
    1235                1240                1245

Pro Glu  Leu Gln Asp Asp Ser  Arg Lys Asp Thr Pro  Lys Thr Lys
    1250                1255                1260

His Lys  Ser Leu Pro Arg Thr  Glu Gln Glu Leu Val  Ala Gly Gln
    1265                1270                1275

Phe Ser  Ser Lys Cys Asp Lys  Leu Asn Pro Leu Gln  Asn His Lys
    1280                1285                1290

Arg Lys  Lys Leu Arg Phe His  Glu Val Thr Phe His  Ser Ser Asn
    1295                1300                1305

Lys Met  Thr Ala Ser Tyr Glu  Gln Ala Ser Gln Glu  Thr Arg Gln
    1310                1315                1320

Lys Lys  His Val Thr Gln Asn  Ser Arg Pro Leu Lys  Thr Lys Thr
    1325                1330                1335

Ala Phe  Leu Pro Asn Lys Asp  Val Tyr Lys Lys His  Ser Ser Leu
    1340                1345                1350

Gly Gln  Ser Leu Ser Pro Glu  Lys Ile Lys Leu Lys  Leu Lys Ser
    1355                1360                1365

Val Ser  Phe Lys Gln Lys Arg  Lys Leu Asp Gln Gly  Asn Val Leu
```

```
    1370                1375                1380

Asp Met  Glu Val Lys Lys Lys  Lys His Asp Lys Gln  Glu Gln Lys
    1385                1390                1395

Gly Ser  Val Gly Ala Thr Phe  Lys Leu Gly Asp Ser  Leu Ser Asn
    1400                1405                1410

Pro Asn  Glu Arg Ala Ile Val  Lys Glu Lys Met Val  Ser Asn Thr
    1415                1420                1425

Lys Ser  Val Asp Thr Lys Ala  Ser Ser Ser Lys Phe  Ser Arg Ile
    1430                1435                1440

Leu Thr  Pro Lys Glu Tyr Leu  Gln Arg Gln Lys His  Lys Glu Ala
    1445                1450                1455

Leu Ser  Asn Lys Ala Ser Lys  Lys Ile Cys Val Lys  Asn Val Pro
    1460                1465                1470

Cys Asp  Ser Glu His Met Arg  Pro Ser Lys Leu Ala  Val Gln Val
    1475                1480                1485

Glu Ser  Cys Gly Lys Ser Asn  Glu Lys His Ser Ser  Gly Val Gln
    1490                1495                1500

Thr Ser  Lys Glu Ser Leu Asn  Gly Leu Thr Ser His  Gly Lys Asn
    1505                1510                1515

Leu Lys  Ile His His Ser Gln  Glu Ser Lys Thr Tyr  Asn Ile Leu
    1520                1525                1530

Arg Asn  Val Lys Glu Lys Val  Gly Gly Lys Gln Pro  Asp Lys Ile
    1535                1540                1545

Trp Ile  Asp Lys Thr Lys Leu  Asp Lys Leu Thr Asn  Ile Ser Asn
```

```
    1550                1555                1560

Glu Ala  Gln Phe Ser Gln Met  Pro Pro Gln Val Lys  Asp Gln Lys
    1565                1570                1575

Lys Leu  Tyr Leu Asn Arg Val  Gly Phe Lys Cys Thr  Glu Arg Glu
    1580                1585                1590

Ser Ile  Ser Leu Thr Lys Leu  Glu Ser Ser Pro Arg  Lys Leu His
    1595                1600                1605

Lys Asp  Lys Arg Gln Glu Asn  Lys His Lys Thr Phe  Leu Pro Val
    1610                1615                1620

Lys Gly  Asn Thr Glu Lys Ser  Asn Met Leu Glu Phe  Lys Leu Cys
    1625                1630                1635

Pro Asp  Ile Leu Leu Lys Asn  Thr Asn Ser Val Glu  Glu Arg Lys
    1640                1645                1650

Asp Val  Lys Pro His Pro Arg  Lys Glu Gln Ala Pro  Leu Gln Val
    1655                1660                1665

Ser Gly  Ile Lys Ser Thr Lys  Glu Asp Trp Leu Lys  Phe Val Ala
    1670                1675                1680

Thr Lys  Lys Arg Thr Gln Lys  Asp Ser Gln Glu Arg  Asp Asn Val
    1685                1690                1695

Asn Ser  Arg Leu Ser Lys Arg  Ser Phe Ser Ala Asp  Gly Phe Glu
    1700                1705                1710

Met Leu  Gln Asn Pro Val Lys  Asp Ser Lys Glu Met  Phe Gln Thr
    1715                1720                1725

Tyr Lys  Gln Met Tyr Leu Glu  Lys Arg Ser Arg Ser  Leu Gly Ser
```

1730 1735 1740

Ser Pro Val Lys
1745

<210> 13
<211> 1747
<212> PRT
<213> Homo sapiens

<400> 13

Met Asn Trp Asn Glu Lys Pro Lys Ser Ala Thr Leu Pro Pro Leu Tyr
1 5 10 15

Pro Lys Ser Gln Pro Pro Phe Leu His Gln Ser Leu Ile Asn Gln Ile
20 25 30

Thr Thr Thr Ser Gln Ser Ser Phe Ser Tyr Pro Gly Ser Asn Gln Glu
35 40 45

Ala Cys Met Tyr Pro Gly Asn Ser Asn Pro Ile Ser Gln Pro Leu Leu
50 55 60

Asn Ile Gln Asn Tyr Pro Gln Gln Ile Ser Val Ser Asp Met His Asn
65 70 75 80

Gly Thr Val Val Ala Ser His Thr Ser Val Glu Arg Ile Thr Tyr Ala
85 90 95

Asn Val Asn Gly Pro Lys Gln Leu Thr His Asn Leu Gln Met Ser Ser
100 105 110

Gly Val Thr Gln Asn Val Trp Leu Asn Ser Pro Met Arg Asn Pro Val
115 120 125

His Ser His Ile Gly Ala Thr Val Ser His Gln Thr Asp Phe Gly Ala
130 135 140

```
Asn Val Pro Asn Met Pro Ala Leu Gln Ser Gln Leu Ile Thr Ser Asp
145                 150                 155                 160

Thr Tyr Ser Met Gln Met Gln Met Ile Pro Ser Asn Ser Thr Arg Leu
                165                 170                 175

Pro Val Ala Tyr Gln Gly Asn Gln Gly Leu Asn Gln Ser Phe Ser Glu
            180                 185                 190

Gln Gln Val Asp Trp Thr Gln Gln Cys Ile Ser Lys Gly Leu Thr Tyr
        195                 200                 205

Pro Asp Tyr Arg Pro Pro Pro Lys Leu Tyr Arg Tyr Ser Pro Gln Ser
    210                 215                 220

Phe Leu Pro Asp Ser Thr Ile Gln Lys Gln Asn Phe Ile Pro His Thr
225                 230                 235                 240

Ser Leu Gln Val Lys Asn Ser Gln Leu Leu Asn Ser Val Leu Thr Leu
                245                 250                 255

Pro Ser Arg Gln Thr Ser Ala Val Pro Ser Gln Gln Tyr Ala Thr Gln
            260                 265                 270

Thr Asp Lys Arg Pro Pro Pro Pro Pro Tyr Asn Cys Arg Tyr Gly Ser
        275                 280                 285

Gln Pro Leu Gln Ser Thr Gln His Ile Thr Lys His Leu Ser Met Glu
    290                 295                 300

Val Pro Gln Ser Arg Glu Met Leu Ser Ser Glu Ile Arg Thr Ser Phe
305                 310                 315                 320

Gln Gln Gln Trp Gln Asn Pro Asn Glu Asn Val Ser Thr Ile Gly Asn
                325                 330                 335
```

```
Phe Thr Asn Leu Lys Val Asn Thr Asn Ser Lys Gln Pro Phe Asn Ser
            340                 345                 350

Pro Ile Arg Ser Ser Val Asp Gly Val Gln Thr Leu Ala Gln Thr Asn
        355                 360                 365

Glu Glu Lys Ile Met Asp Ser Cys Asn Pro Thr Ser Asn Gln Val Leu
    370                 375                 380

Asp Thr Ser Val Ala Lys Glu Lys Leu Val Arg Asp Ile Lys Thr Leu
385                 390                 395                 400

Val Glu Ile Lys Gln Lys Phe Ser Glu Leu Ala Arg Lys Ile Lys Ile
                405                 410                 415

Asn Lys Asp Leu Leu Met Ala Ala Gly Cys Ile Lys Met Thr Asn Thr
            420                 425                 430

Ser Tyr Ser Glu Pro Ala Gln Asn Ser Lys Leu Ser Leu Lys Gln Thr
        435                 440                 445

Ala Lys Ile Gln Ser Gly Pro Gln Ile Thr Pro Val Met Pro Glu Asn
    450                 455                 460

Ala Glu Arg Gln Thr Pro Thr Val Val Glu Ser Ala Glu Thr Asn Lys
465                 470                 475                 480

Thr Gln Cys Met Leu Asn Ser Asp Ile Gln Glu Val Asn Cys Arg Arg
                485                 490                 495

Phe Asn Gln Val Asp Ser Val Leu Pro Asn Pro Val Tyr Ser Glu Lys
            500                 505                 510

Arg Pro Met Pro Asp Pro Ser His Asp Val Lys Val Leu Thr Ser Lys
        515                 520                 525
```

```
Thr Ser Ala Val Glu Met Thr Gln Ala Val Leu Asn Thr Gln Leu Ser
    530                 535                 540

Ser Glu Asn Val Thr Lys Val Glu Gln Asn Ser Pro Ala Val Cys Glu
545                 550                 555                 560

Thr Ile Ser Val Pro Lys Ser Met Ser Thr Glu Glu Tyr Lys Ser Lys
                565                 570                 575

Ile Gln Asn Glu Asn Met Leu Leu Leu Ala Leu Leu Ser Gln Ala Arg
            580                 585                 590

Lys Thr Gln Lys Thr Val Leu Lys Asp Ala Asn Gln Thr Ile Gln Asp
        595                 600                 605

Ser Lys Pro Asp Ser Cys Glu Met Asn Pro Asn Thr Gln Met Thr Gly
    610                 615                 620

Asn Gln Leu Asn Leu Lys Asn Met Glu Thr Pro Ser Thr Ser Asn Val
625                 630                 635                 640

Ser Gly Arg Val Leu Asp Asn Ser Phe Cys Ser Gly Gln Glu Ser Ser
                645                 650                 655

Thr Lys Gly Met Pro Ala Lys Ser Asp Ser Ser Cys Ser Met Glu Val
            660                 665                 670

Leu Ala Thr Cys Leu Ser Leu Trp Lys Lys Gln Pro Ser Asp Thr Ala
        675                 680                 685

Lys Glu Lys Glu Cys Asp Lys Leu Arg Thr Asn Thr Thr Ala Val Gly
    690                 695                 700

Ile Ser Lys Pro Ala Asn Ile His Val Lys Ser Pro Cys Ser Val Val
705                 710                 715                 720
```

```
Gly Asn Ser Asn Ser Gln Asn Lys Ile Ser Asn Pro Ser Gln Gln Thr
                725                 730                 735

Ala Leu Ser Met Val Met His Asn Tyr Glu Ser Ser Gly Ile Asn Ile
            740                 745                 750

Thr Lys Gly Thr Glu Leu Gln Ile Ala Val Val Ser Pro Leu Val Leu
        755                 760                 765

Ser Glu Val Lys Thr Leu Ser Val Lys Gly Ile Thr Pro Ala Val Leu
    770                 775                 780

Pro Glu Thr Val Tyr Pro Val Ile Lys Glu Gly Ser Val Cys Ser Leu
785                 790                 795                 800

Gln Asn Gln Leu Ala Glu Asn Ala Lys Ala Thr Ala Ala Leu Lys Val
                805                 810                 815

Asp Val Ser Gly Pro Val Ala Ser Thr Ala Thr Ser Thr Lys Ile Phe
            820                 825                 830

Pro Leu Thr Gln Lys Glu Lys Gln Asn Glu Ser Thr Asn Gly Asn Ser
        835                 840                 845

Glu Val Thr Pro Asn Val Asn Gln Gly Lys His Asn Lys Leu Glu Ser
    850                 855                 860

Ala Ile His Ser Pro Met Asn Asp Gln Gln Ile Ser Gln Glu Ser Arg
865                 870                 875                 880

Asn Ser Thr Val Val Ser Ser Asp Thr Leu Gln Ile Asp Asn Ile Cys
                885                 890                 895

Ser Leu Val Glu Gly Asp Thr Ser Tyr Asn Ser Gln Ile Ala Lys Ile
            900                 905                 910
```

```
Phe Ser Ser Leu Pro Leu Lys Met Val Glu Pro Gln Lys Pro Ser Leu
        915                 920                 925

Pro Asn Gln Gln Gly Ile Gly Ser Arg Glu Pro Glu Lys Gln Leu Asp
    930                 935                 940

Asn Thr Thr Glu Asn Lys Asp Phe Gly Phe Gln Lys Asp Lys Pro Val
945                 950                 955                 960

Gln Cys Thr Asp Val Ser His Lys Ile Cys Asp Gln Ser Lys Ser Glu
                965                 970                 975

Pro Pro Leu Glu Ser Ser Phe Asn Asn Leu Glu Thr Asn Arg Val Ile
            980                 985                 990

Leu Glu Lys Ser Ser Leu Glu His  Ala Thr Glu Lys Ser  Thr Ala Asn
        995                 1000                1005

Asp Thr  Cys Ser Ser Ala Ala  Ile Gln Glu Asp Ile  Tyr Pro Gln
    1010                1015                1020

Glu Ile  Asp Ala Ser Ser Asn  Tyr Thr Pro Gln Asp  Pro Ala Arg
    1025                1030                1035

Asn Glu  Ile His Ser Asp Lys  Ala Pro Val Leu Tyr  Leu His Asp
    1040                1045                1050

Gln Leu  Ser Glu Leu Leu Lys  Glu Phe Pro Tyr Gly  Ile Glu Ala
    1055                1060                1065

Val Asn  Thr Arg Glu Gly Ser  Val Gly Gln Gln Thr  Thr Tyr Gln
    1070                1075                1080

Thr Ser  Glu Asp Gln Thr Ala  Asp Lys Thr Ser Ser  Asp Ser Lys
    1085                1090                1095
```

```
Asp Pro  Ala Asp Gln Ile Gln  Ile Thr Ile Leu Ser  Ser Glu Gln
    1100                1105                1110

Met Lys  Glu Ile Phe Pro Glu  Gln Asp Asp Gln Pro  Tyr Val Val
    1115                1120                1125

Asp Lys  Leu Ala Glu Pro Gln  Lys Glu Glu Pro Ile  Thr Glu Val
    1130                1135                1140

Val Ser  Gln Cys Asp Leu Gln  Ala Pro Ala Ala Gly  Gln Ser Arg
    1145                1150                1155

Asp Ser  Val Ile Leu Asp Ser  Glu Lys Asp Asp Ile  His Cys Cys
    1160                1165                1170

Ala Leu  Gly Trp Leu Ser Met  Val Tyr Glu Gly Val  Pro Gln Cys
    1175                1180                1185

Gln Cys  Asn Ser Ile Lys Asn  Ser Ser Ser Glu Glu  Glu Lys Gln
    1190                1195                1200

Lys Glu  Gln Cys Ser Pro Leu  Asp Thr Asn Ser Cys  Lys Gln Gly
    1205                1210                1215

Glu Arg  Thr Ser Asp Arg Asp  Val Thr Val Val Gln  Phe Lys Ser
    1220                1225                1230

Leu Val  Asn Asn Pro Lys Thr  Pro Pro Asp Gly Lys  Ser His Phe
    1235                1240                1245

Pro Glu  Leu Gln Asp Asp Ser  Arg Lys Asp Thr Pro  Lys Thr Lys
    1250                1255                1260

His Lys  Ser Leu Pro Arg Thr  Glu Gln Glu Leu Val  Ala Gly Gln
    1265                1270                1275
```

```
Phe Ser  Ser Lys Cys Asp Lys  Leu Asn Pro Leu Gln  Asn His Lys
    1280                1285                1290

Arg Lys  Lys Leu Arg Phe His  Glu Val Thr Phe His  Ser Ser Asn
    1295                1300                1305

Lys Met  Thr Ala Ser Tyr Glu  Gln Ala Ser Gln Glu  Thr Arg Gln
    1310                1315                1320

Lys Lys  His Val Thr Gln Asn  Ser Arg Pro Leu Lys  Thr Lys Thr
    1325                1330                1335

Ala Phe  Leu Pro Asn Lys Asp  Val Tyr Lys Lys His  Ser Ser Leu
    1340                1345                1350

Gly Gln  Ser Leu Ser Pro Glu  Lys Ile Lys Leu Lys  Leu Lys Ser
    1355                1360                1365

Val Ser  Phe Lys Gln Lys Arg  Lys Leu Asp Gln Gly  Asn Val Leu
    1370                1375                1380

Asp Met  Glu Val Lys Lys Lys  Lys His Asp Lys Gln  Glu Gln Lys
    1385                1390                1395

Gly Ser  Val Gly Ala Thr Phe  Lys Leu Gly Asp Ser  Leu Ser Asn
    1400                1405                1410

Pro Asn  Glu Arg Ala Ile Val  Lys Glu Lys Met Val  Ser Asn Thr
    1415                1420                1425

Lys Ser  Val Asp Thr Lys Ala  Ser Ser Ser Lys Phe  Ser Arg Ile
    1430                1435                1440

Leu Thr  Pro Lys Glu Tyr Leu  Gln Arg Gln Lys His  Lys Glu Ala
    1445                1450                1455
```

```
Leu Ser  Asn Lys Ala Ser Lys  Lys Ile Cys Val Lys  Asn Val Pro
    1460                1465                1470

Cys Asp  Ser Glu His Met Arg  Pro Ser Lys Leu Ala  Val Gln Val
    1475                1480                1485

Glu Ser  Cys Gly Lys Ser Asn  Glu Lys His Ser Ser  Gly Val Gln
    1490                1495                1500

Thr Ser  Lys Glu Ser Leu Asn  Gly Leu Thr Ser His  Gly Lys Asn
    1505                1510                1515

Leu Lys  Ile His His Ser Gln  Glu Ser Lys Thr Tyr  Asn Ile Leu
    1520                1525                1530

Arg Asn  Val Lys Glu Lys Val  Gly Gly Lys Gln Pro  Asp Lys Ile
    1535                1540                1545

Trp Ile  Asp Lys Thr Lys Leu  Asp Lys Leu Thr Asn  Ile Ser Asn
    1550                1555                1560

Glu Ala  Gln Phe Ser Gln Met  Pro Pro Gln Val Lys  Asp Gln Lys
    1565                1570                1575

Lys Leu  Tyr Leu Asn Arg Val  Gly Phe Lys Cys Thr  Glu Arg Glu
    1580                1585                1590

Ser Ile  Ser Leu Thr Lys Leu  Glu Ser Ser Pro Arg  Lys Leu His
    1595                1600                1605

Lys Asp  Lys Arg Gln Glu Asn  Lys His Lys Thr Phe  Leu Pro Val
    1610                1615                1620

Lys Gly  Asn Thr Glu Lys Ser  Asn Met Leu Glu Phe  Lys Leu Cys
    1625                1630                1635
```

```
Pro Asp  Ile Leu Leu Lys Asn  Thr Asn Ser Val Glu  Glu Arg Lys
    1640                1645                1650


Asp Val  Lys Pro His Pro Arg  Lys Glu Gln Ala Pro  Leu Gln Val
    1655                1660                1665


Ser Gly  Ile Lys Ser Thr Lys  Glu Asp Trp Leu Lys  Phe Val Ala
    1670                1675                1680


Thr Lys  Lys Arg Thr Gln Lys  Asp Ser Gln Glu Arg  Asp Asn Val
    1685                1690                1695


Asn Ser  Arg Leu Ser Lys Arg  Ser Phe Ser Ala Asp  Gly Phe Glu
    1700                1705                1710


Met Leu  Gln Asn Pro Val Lys  Asp Ser Lys Glu Met  Phe Gln Thr
    1715                1720                1725


Tyr Lys  Gln Met Tyr Leu Glu  Lys Arg Ser Arg Ser  Leu Gly Ser
    1730                1735                1740


Ser Pro  Val Lys
    1745


<210>  14
<211>  1521
<212>  PRT
<213>  Mus musculus

<400>  14

Met Asn Trp Asn Thr Lys Gln Glu Asn Val Pro Lys Pro Pro Pro Tyr
1               5                  10                  15


Ser Lys Thr Gln Ser Ser Ile Leu Gln His Phe Leu Met Thr Ser Thr
            20                  25                  30
```

```
Thr Ser Gln Ser Ser Phe Asn Tyr Ser Pro His Asn Gln Glu Ala Ser
        35                  40                  45

Gln Thr Ser Phe Asn Tyr Ser Leu His Asn Gln Glu Ala Cys Met Tyr
    50                  55                  60

Ser Gly Asn Ser Asn Ser Val Ser Gln Pro Leu Leu Ser Gly Arg Asn
65                  70                  75                  80

Tyr Ile Thr Pro Gln Thr Gln Ile Ser Val Ser Asn Met Pro Thr Arg
                85                  90                  95

Thr Ile Val Ala Ser Gln Ser Ser Met Glu Arg Val Val Ser Thr Asn
            100                 105                 110

Gly Lys Gly Pro Gln Gln Pro Asn His Asn Leu Gln Thr Val Ser Ser
        115                 120                 125

Gly Ile Met Gln Asn Val Trp Leu Pro Ser His Thr Glu Ala Thr Ile
    130                 135                 140

Ser His Asn Pro Asp Gly Gly Thr Asn Met Pro Tyr Met His Pro Pro
145                 150                 155                 160

Gln Asn Gln Leu Val Thr Ser Asp Thr Tyr Ser Met Gln Leu Gln Met
                165                 170                 175

Ala Pro Leu His Ser Gly Lys Val Pro Met Thr His Gln Gly Ser Gln
            180                 185                 190

Gly Leu Asn His Phe Ile Pro Asp Gln Leu Val Asp Trp Thr Gln Tyr
        195                 200                 205

Thr Ser Asn Glu Leu Ser Tyr Pro Glu Tyr Arg Pro Pro Pro Lys Gln
    210                 215                 220
```

```
Tyr Ser Tyr Ile Leu Pro Ala Thr Thr Ser Leu Gln Val Lys Asn Asn
225                 230                 235                 240

Gln Leu Pro Thr Tyr Thr Gln Ser Leu Gln Ser Lys His Ser Val Pro
                245                 250                 255

Leu Ser Ser His Gln Tyr Ala Ala Glu Ala Ser Lys Arg Leu Ser Ala
            260                 265                 270

Leu Pro Tyr Ser Cys Arg Tyr Glu Asn Gln His Val Gln Asn Ala Gln
        275                 280                 285

Pro Val Ser Lys His Leu Pro Met Glu Val Pro Gln Ser Ser Glu Val
    290                 295                 300

His Ser Ser Glu Lys Lys Lys Asp Thr Tyr Arg Gly Phe Lys Gln Gln
305                 310                 315                 320

Trp Gln Asn Pro Asn Glu Lys Val Ser Ile Gly Gln Phe Ser Glu Val
                325                 330                 335

Lys Ile Asn Ile Lys Gln Pro Tyr Ser Glu Ser Val Arg Pro Ser Gly
            340                 345                 350

Asp Gly Val Gln Ala Leu Val Gln Asn Asn Gln Glu Lys Arg Lys Tyr
        355                 360                 365

Thr Tyr Asn Pro Asn Thr Asn Gln Val Ile Asp Thr Asn Ala Thr Lys
    370                 375                 380

Glu Lys Leu Val Arg Asp Ile Lys Ser Leu Val Glu Ile Lys Lys Lys
385                 390                 395                 400

Phe Ser Glu Leu Ala Arg Lys Ile Lys Ile Asn Lys Ser Leu Leu Met
                405                 410                 415
```

```
Ala Ala Gly Cys Ser Lys Thr Ala Asn Thr Ser Tyr Thr Glu Pro Ile
            420                 425                 430

Gln His Ser Glu Phe Ser Ala Lys Glu Met Ser Ala Lys Asn Gly Asn
        435                 440                 445

Asp Cys Ser Met Glu Leu Leu Ala Thr Cys Leu Ser Leu Trp Lys Asn
    450                 455                 460

Gln Pro Ser Lys Thr Thr Glu Glu Asn Val Pro Lys Pro Leu Glu Glu
465                 470                 475                 480

Lys Gln Cys Asn Thr Ser Arg Ile Ser Thr Thr Val Val Gly Ser Ala
                485                 490                 495

Asn Pro Thr Asn Glu Val His Val Lys Ser Leu Cys Ser Gly Val Gly
            500                 505                 510

Asn Ser Gln Lys Met Met Ser Ser Ser Gln Thr Val Leu Pro Val Leu
        515                 520                 525

Ile Pro Ser Cys Glu Ser Ser Gly Val Ala Val Gly Lys Gly Thr Glu
    530                 535                 540

Leu Gln Ile Ala Val Val Ser Pro Leu Val Leu Ser Asp Thr Asn Thr
545                 550                 555                 560

Leu Pro Gly Lys Asp Ser Val Pro Glu Val Leu Pro Glu Thr Leu Tyr
                565                 570                 575

Pro Val Val Lys Glu Gly Ser Val Cys Ser Leu Gln Thr Gln Pro Thr
            580                 585                 590

Glu Thr Val Ala Leu Pro Phe Asp Val Ile Gly Ala Val Ala Ser Asn
        595                 600                 605
```

```
Asn Ile Ser Ala Glu Ile Pro Leu Pro Val Asp Lys Glu Lys Gln His
    610                 615                 620

Lys Pro Ile Gln Gly Asp Pro Asp Ile Ala Asp Ser Ser Leu Gly Lys
625                 630                 635                 640

His Ser Pro Leu Gly Thr Glu Val Leu Pro Lys Pro Met Asp Ser Thr
                645                 650                 655

Ile Val Ser Gly Pro Met Leu Gln Ile Glu Ser Ile Cys Ser Leu Ala
            660                 665                 670

Glu Gly Asp Val Ser Tyr Asn Ser Gln Ile Ala Glu Ile Phe Asn Ser
        675                 680                 685

Val Gln Thr Glu Pro Gln Lys Pro Ser Pro Asn Gln Val Ile Asp Ser
    690                 695                 700

Gln Gln Glu Gln Val Tyr Asp Thr Thr Glu Asn Lys Asp Phe Ser Leu
705                 710                 715                 720

Gln Lys Asp Lys Cys Val Gln Cys Thr Asp Val Pro His Glu Val Pro
                725                 730                 735

Glu Gln Pro Glu Pro Leu Gln Pro Glu Glu Pro Ala Ser Ser Glu Tyr
            740                 745                 750

Val Glu Ala Asn Arg Glu Ala Thr Glu Glu Ser Cys Arg Glu Tyr Thr
        755                 760                 765

Gly Arg Lys Glu Ser Thr Ala Lys Asp Val Cys Leu Pro Ala Ala Ile
    770                 775                 780

Gln Gln Asp Pro His Pro Arg Glu Thr Asp Met Phe Ser Lys Ser Asp
785                 790                 795                 800
```

```
His Ser Leu Pro Ala Ile Asn Glu Ile Asn Asp Glu Ser Glu Pro Ile
                805                 810                 815

Ser Tyr Leu His Asp Gln Leu Ser Glu Leu Leu Lys Glu Phe Pro Tyr
            820                 825                 830

Gly Ile Glu Thr Phe Asn Arg His Glu Val Ser Leu Asp Gln Gln Lys
        835                 840                 845

Thr His Lys Ile Val Glu Asn Gln Thr Gly Gly Lys Thr Ser Asn Val
    850                 855                 860

Ser Gly Asp Ser Thr Asp Gln Ile Lys Ile Thr Val Leu Asn Ser Glu
865                 870                 875                 880

Gln Ile Lys Glu Leu Phe Pro Glu Asp Asp Gln Pro Cys Asp Lys Leu
                885                 890                 895

Ala Glu Pro Glu Asn Lys Glu Ile Val Ala Glu Val Lys Ser Pro Cys
            900                 905                 910

Asp Ser Gln Ile Pro Arg Glu Glu Ser His Asp Leu Gly Met Leu Asp
        915                 920                 925

Pro Glu Lys Asp Lys Ile His Cys Cys Ala Leu Gly Trp Leu Ser Met
    930                 935                 940

Val Tyr Glu Gly Val Pro Gln Cys His Cys Ser Ser Thr Glu Lys Lys
945                 950                 955                 960

Glu Lys Asp Gln Cys Leu Asp Ile Asn Ser Ser Lys Gln Gly Glu Gln
                965                 970                 975

Pro Cys Asn Ser Gly Ile Thr Ile Phe Glu Ile Asn Pro Val Ser Asn
            980                 985                 990
```

```
Asn Ser Lys Thr Pro Leu Thr Gln  Ala Thr Glu Glu Gly  His Phe Ser
        995                 1000                1005


Ala Val  His Gly Glu Lys Thr  Lys Ala Ser Lys Thr  Lys Asp Asn
    1010                1015                1020


Arg Glu  Gly Gln Glu Leu Ala  Cys His Phe Ser Ala  Lys Cys Tyr
    1025                1030                1035


Lys Lys  Asp Lys Lys Gly Asn  Phe Lys Ile Arg His  Asp Thr Ser
    1040                1045                1050


Leu Lys  Met Glu Gln Lys Leu  Lys Asn Ile Ser Ser  Lys Cys Asp
    1055                1060                1065


Ile Pro  Asn Pro Ser Lys Cys  Asn Lys Ile Ala Ala  Pro Glu Ile
    1070                1075                1080


Leu His  Val Thr Thr Ser Asn  Ser Ala Lys Asn Met  Pro Phe Ser
    1085                1090                1095


Lys Gln  Ala Ser Gln Glu Ser  Leu Gln Lys Lys His  Thr Ser Gln
    1100                1105                1110


Asp Leu  Gly Pro Val Lys Ala  Pro Ile Glu Leu Ser  Ser Asn Thr
    1115                1120                1125


Asp Pro  Cys Arg Ser Asn Thr  Ser Ser Val Gln Ser  Val Ser Pro
    1130                1135                1140


Glu Lys  Lys Lys Leu Lys Phe  Lys Ala Gly Gly Ser  Arg Leu Lys
    1145                1150                1155


Tyr Phe  Glu Lys Arg Lys Thr  Asp His Val Ile Ile  Pro Asp Val
    1160                1165                1170
```

```
Glu Ile  Lys Lys Lys Lys Tyr  Glu Lys Gln Glu Gln  Asn Lys Asn
    1175                 1180                 1185


Ala Gly  Asp Thr Leu Lys Leu  Cys Ser Ile Leu Thr  Glu Ser Asn
    1190                 1195                 1200


Glu Arg  Ala Ser Val Gln Glu  Lys Thr Val Pro Ser  Pro Glu Ser
    1205                 1210                 1215


Ser Asp  Pro Lys Gly Ser Ser  Ser Lys Ser Thr Arg  Val Ile Thr
    1220                 1225                 1230


Val Gln  Glu Tyr Leu Gln Arg  Gln Lys Asp Lys Gln  Ile Thr Gly
    1235                 1240                 1245


Asn Asn  Ala Ser Arg Asn Ile  Cys Val Glu Thr Val  Leu Cys Asp
    1250                 1255                 1260


Ser Gly  His Thr Lys Thr Ser  Lys His Ser Ala Ala  Val Ser Trp
    1265                 1270                 1275


Gly Lys  Leu Val Glu Gly Gln  Ser Ile Ser Ala Glu  Thr Ala Lys
    1280                 1285                 1290


Glu Leu  Glu His Asn Ser Ser  Ser His Gly Lys Asp  Phe Lys Ile
    1295                 1300                 1305


His His  Ser Glu Ala Ser Arg  Thr His Ser Val Ser  Asn Asn Asn
    1310                 1315                 1320


Lys Gly  Lys Phe Asp Gly Lys  Gln Pro Asp Lys Met  Phe Lys Asn
    1325                 1330                 1335


Lys Thr  Ser Met Asn Asn Glu  Ser Asn Gln Met Pro  Leu Gln Val
    1340                 1345                 1350
```

```
Lys Glu  Gln Arg Lys Gln Tyr  Leu Asn Arg Val Ala  Phe Lys Cys
    1355                1360                1365

Thr Glu  Arg Glu Ser Ile Cys  Leu Thr Lys Leu Asp  Ser Ala Ser
    1370                1375                1380

Lys Lys  Leu Ser Ile Glu Lys  Lys Ser Gly Glu Tyr  Thr Ser Lys
    1385                1390                1395

Thr Lys  Asp Thr Asp Lys Pro  Ser Met Leu Glu Phe  Lys Leu Cys
    1400                1405                1410

Pro Asp  Val Leu Leu Lys Asn  Thr Ser Thr Val Asp  Lys Gln Asp
    1415                1420                1425

Cys Pro  Gly Pro Gly Pro Glu  Lys Glu Gln Ala Pro  Val Gln Val
    1430                1435                1440

Ser Gly  Ile Lys Ser Thr Lys  Glu Asp Trp Leu Lys  Cys Ile Pro
    1445                1450                1455

Thr Arg  Thr Lys Met Pro Glu  Ser Ser Gln Arg Asp  Ser Ala Asp
    1460                1465                1470

Ser Arg  Leu Ser Lys Arg Ser  Leu Ser Ala Asp Glu  Phe Glu Ile
    1475                1480                1485

Leu Gln  Asn Pro Val Lys Glu  Ser Asn Ile Met Phe  Arg Thr Tyr
    1490                1495                1500

Lys Lys  Met Tyr Leu Glu Lys  Arg Ser Arg Ser Leu  Gly Ser Ser
    1505                1510                1515

Pro Val  Lys
    1520
```

<210> 15
<211> 1741
<212> PRT
<213> Bos taurus

<400> 15

```
Met Asn Trp Asn Ala Lys Pro Glu Ser Val Thr Leu Pro Pro Gln Tyr
1               5                   10                  15


Pro Lys Lys Gln Ala Ser Phe Leu Glu Gln Gly Leu Val Asn Thr Leu
            20                  25                  30


Ser Thr Thr Ser Gln Ser Ser Phe His Thr Gly Ser Asn Gln Glu Pro
        35                  40                  45


Cys Leu Phe Leu Ser Asn Ser His Pro Val Ser Gln Pro Leu Leu Asn
    50                  55                  60


Ile Arg Asn His Lys Thr Pro Pro Gln Ile Pro Ile Ser Asp Leu His
65                  70                  75                  80


Ser Gly Thr Ile Val Thr Ser Gln Thr Ser Val Glu Arg Ile Thr Tyr
                85                  90                  95


Ala Asn Val Lys Gly Pro Lys Gln Leu Ser His Asp Leu Gln Ile Ser
            100                 105                 110


Ser Gly Val Thr Pro Asp Val Trp Leu Asn Ser Pro Met Gly Ser Ser
        115                 120                 125


Thr Leu Ser His Thr Gly Ala Thr Val Ser His Gln Thr Gly Phe Gly
    130                 135                 140


Thr Asn Val Pro Asn Val His Ala Leu Gln Asn Gln Phe Leu Thr Ser
145                 150                 155                 160
```

```
Asp Thr Tyr Ser Met Gln Leu His Met Ile Pro Ser Asn Ser Gly Arg
                165                 170                 175

Val Pro Ile Thr Tyr Gln Gly Asn Thr Arg Leu Asn Leu Pro Leu Ser
            180                 185                 190

Glu Gln Gln Val Asp Trp Ala Pro Gln Arg Ala Ser Ser Gly Leu Thr
        195                 200                 205

Tyr Gln Asp Tyr Arg Pro Leu Pro Lys Gln Tyr Asn Tyr Ser Pro Arg
    210                 215                 220

Ser Phe Leu Gln Glu Pro Ala Leu Gln Lys Gln Asn Ala Met Ser Ser
225                 230                 235                 240

Val Ser Phe Gln Val Lys Asn Asn Gln Ser Pro Asn Pro Ala Leu Thr
                245                 250                 255

Phe Lys Ser Lys Gln Ile Ala Ala Val Pro Ser Tyr Gln Tyr Ala Val
            260                 265                 270

Thr Gln Thr Asp Lys Arg Pro Pro Pro Pro Tyr Asp Cys Arg Tyr Ala
        275                 280                 285

Ser Gln Ser Leu Gln Ser Thr Pro Arg Val Val Lys Gln Ser Ser Met
    290                 295                 300

Glu Val Pro Gln Ser Gln Glu Met His Leu Pro Glu Met Arg Lys Asp
305                 310                 315                 320

Phe Cys Arg Asp Phe Gln Gln Gln Trp Gln Asn Leu Asn Glu Asn Phe
                325                 330                 335

Ser Met Met Gly Gly Ser Cys Asn Leu Lys Val Asn Thr Ser Val Asn
            340                 345                 350
```

```
His Pro Phe Asn Glu Pro Val Arg Ser Ser Val Thr Gly Ala Gln Ala
        355                 360                 365

Leu Ala Gln Asn Asn Gln Glu Arg Thr Val Asp Ser Gln Asn Leu Thr
    370                 375                 380

Ser Asn Gln Ala Leu Asp Thr Ser Ala Thr Lys Glu Lys Leu Val Arg
385                 390                 395                 400

Asp Ile Lys Thr Leu Val Glu Ile Lys Lys Lys Phe Ser Asp Leu Ala
                405                 410                 415

Arg Lys Ile Lys Ile Asn Lys Ser Leu Leu Met Ala Ala Gly Cys Ile
            420                 425                 430

Lys Thr Pro Asn Thr Ser Tyr Ser Glu Ser Ala Gln Asn Ser Gly Leu
        435                 440                 445

Ser Leu Lys Gln Thr Ala Lys Ile Gln Ser Glu Pro Gln Leu Thr Leu
    450                 455                 460

Val Thr Pro Glu Ile Val Glu Asp Lys Pro Pro Thr Val Met Glu Ser
465                 470                 475                 480

Ala Glu Glu Thr Asn Arg Pro Gln Arg Val Leu Ser Ser Asn Leu Gln
                485                 490                 495

Asp Arg Asn Phe Asn Gln Val Ser Ser Val Ser Leu Asn Ser Ala Cys
            500                 505                 510

Ser Glu Lys Leu Pro Ile Pro Glu Gln Val His Asp Leu Glu Val Val
        515                 520                 525

Asn Ser Leu Lys Thr Ser Thr Val Glu Val Thr Gln Ala Pro Leu Asn
    530                 535                 540
```

```
Asn Thr Gln Leu Ser Ser Gly Asn Ser Val Ser Ile Ala Gln Asn Val
545                 550                 555                 560


Pro Thr Asn Ser Glu Val Thr Phe Leu Pro His Ser Thr Ser Ser Glu
                565                 570                 575


Glu Tyr Ile Ser Lys Tyr Pro Asn Lys Asn Arg Leu Ile Leu Ser Leu
            580                 585                 590


Leu Thr Ser Gly Ser Lys Thr Gln Lys Lys Leu Leu Lys Asp Thr Gly
        595                 600                 605


Glu Cys Ile His Asp Ser Lys Leu His Asn Phe Glu Met Asn Ala Asn
    610                 615                 620


Thr Glu Asn Thr Gly Asn Gln Leu Lys Thr Thr Glu Thr Val Asn Leu
625                 630                 635                 640


Pro Arg Thr Cys Asn Arg Asn Ala Lys Val Ala Asp Thr Ser Cys Leu
                645                 650                 655


Glu Cys Lys Ser Phe Asn Gly Val Ser Ser Asn Ser Gly Ser Arg Phe
            660                 665                 670


Ser Met Glu Leu Leu Ala Thr Cys Leu Ser Leu Trp Lys Lys Gln Pro
        675                 680                 685


Ser Glu Pro Thr Lys Glu Lys Gln Asp Asn Glu Ser Lys Thr Asn Ile
    690                 695                 700


Thr Ala Ile Ala Val Ser Lys Pro Ala Pro Ile Cys Glu Ser Ser Pro
705                 710                 715                 720


Phe Ser Pro Val Gly Asn Ser Gln Asn Lys Ile Val Asn Ser Ser Leu
                725                 730                 735
```

```
Glu Thr Ile Ser Ser Val Val Ala Gln Asn Tyr Glu Ser Ser Gly Thr
            740                 745                 750

Thr Thr Thr Lys Gly Ile Ala Val Val Ser Pro Leu Ile Leu Ser Asp
        755                 760                 765

Val Asn Thr Leu Ser Val Lys Asp Thr Thr Ser Glu Ala Leu Pro Glu
    770                 775                 780

Met Val Tyr Pro Val Ile Lys Glu Gly Ser Val Cys Ser Leu Gln Asn
785                 790                 795                 800

Lys Leu Thr Glu Asn Thr Ala Ala Leu Lys Ile Asn Val Asn Glu Pro
                805                 810                 815

Val Thr Ser Thr Thr Gly Ile Met Ile Phe Pro Leu Ile Glu Asp Lys
            820                 825                 830

Gln Ser Glu Ser Thr Asn Thr Asn Ser Glu Gly Ile Pro Asn Thr Asn
        835                 840                 845

Gln Gly Lys His Asn Glu Ser Glu Pro Asp Ile Gln Cys Pro Val Ser
    850                 855                 860

Asp Gln Gln Thr Ser Tyr Ile Ser Lys Asp Ser Ser Ser Val Gly Ser
865                 870                 875                 880

Asp Val Leu Gln Ile Gly Ser Ile Cys Ser Leu Val Glu Gly Asp Thr
                885                 890                 895

Ser Tyr Asp Ser Gln Ile Ala Glu Ile Phe Asn Leu Leu Pro Leu Gln
            900                 905                 910

Lys Val Glu Pro Gln Lys Pro Leu Pro Asn His Gln Met Met Ser Ser
        915                 920                 925
```

```
Arg Gln Gln Asn Glu His Leu Glu Asn Ile Thr Glu Ser Lys Asp Phe
    930                 935                 940

Asp Phe Lys Lys Asp Glu Phe Val Gln Cys Thr Asp Val Ser Asn Lys
945                 950                 955                 960

Ile Thr Asp Gln Ser Glu Ser Leu Gln Leu Pro Ala Leu Ser Pro Leu
                965                 970                 975

Lys Cys Val Glu Ala Lys Ser Gly Ile Leu Glu Glu Gly Ser Leu Glu
            980                 985                 990

His Ile Thr Glu Asn Glu Ser Met  Ala Asn Asp Thr Cys  Ser Ser Ala
        995                 1000                1005

Ala Thr  Gln Gln Asp Ser Tyr  Pro Gln Glu Ala Asp  Thr Ser Cys
    1010                1015                1020

Ser Tyr  Thr Glu Gln Asp Pro  Thr Thr Asp Glu Ser  Leu His Asp
    1025                1030                1035

Lys Thr  Ser Ile Leu Tyr Leu  His Asp Gln Leu Ser  Glu Leu Leu
    1040                1045                1050

Lys Glu  Phe Pro Tyr Gly Ile  Glu Pro Val Asn Met  His Glu Ser
    1055                1060                1065

Ser Val  Val Gln Gln Met Ala  Asn Gln Ile Ser Glu  Ala Gln Thr
    1070                1075                1080

Cys Gly  Lys Thr Asp Cys Asp  Ser Lys Gly Ser Thr  Asp Gln Ile
    1085                1090                1095

Gln Ile  Thr Ile Leu Asn Thr  Asp Gln Met Lys Glu  Leu Phe Pro
    1100                1105                1110
```

```
Glu Gln  Asp Asp Gln Pro Ser  Glu Val Asp Lys Leu  Thr Glu Pro
    1115                1120                1125

Gln Lys  Glu Lys Pro Val Thr  Lys Glu Glu Lys Gln  Cys Asp Pro
    1130                1135                1140

Gln Ala  Cys Arg Val Glu Glu  Arg Cys Ala Ser Val  Pro Leu Asp
    1145                1150                1155

Ser Glu  Lys Asp Asp Ile Arg  Cys Cys Ala Leu Gly  Trp Leu Ser
    1160                1165                1170

Met Val  Tyr Glu Gly Val Pro  Gln Cys Gln Cys Asn  Ser Ile Lys
    1175                1180                1185

Lys Ser  Asp Ser Lys Glu Lys  Lys Gln Ile Asn Pro  Cys Ser Pro
    1190                1195                1200

Ser Glu  Ala Lys Ser Tyr Lys  Gln Gly Glu Arg Thr  Ser Asp Arg
    1205                1210                1215

Asp Val  Pro Val Ala Leu Asn  Ser Pro Pro Asn Asn  Pro Pro Lys
    1220                1225                1230

Ser Pro  Leu Thr Ser Ser Val  Glu Lys Lys His Phe  Pro Glu Thr
    1235                1240                1245

Lys Gln  Ser Ser Asn Ile Lys  Asp Lys Ser Lys Thr  Glu Arg Asn
    1250                1255                1260

Ser Ser  Leu Arg Thr Glu Gln  Glu Leu Ser Gly Gln  Leu Leu Ser
    1265                1270                1275

Lys Gly  Asp Lys Lys Leu Asp  Ser Leu Gln Ser His  Lys Arg Lys
    1280                1285                1290
```

```
Arg Asn  Leu Gln Phe His Glu  Val Asn Phe Asn Ser  Ala Asn Lys
    1295                 1300                 1305

Ile Thr  Lys Phe Ser Gln Glu  Ser Leu Gln Arg Lys  Phe Met Ala
    1310                 1315                 1320

Gln Asn  Leu Gly Pro Leu Lys  Pro Lys Met Ser Phe  Leu Thr Ser
    1325                 1330                 1335

Lys Thr  Lys Asp Leu Asn Met  Lys Asn Gly Ser Ser  Val Gln Ser
    1340                 1345                 1350

Val Ser  Pro Glu Lys Arg Lys  Leu Lys Ser Ala Gly  Ser Lys Gln
    1355                 1360                 1365

Lys Ser  Leu Glu Glu Arg Lys  Leu Asp Glu Gly Ile  Thr Leu Asp
    1370                 1375                 1380

Ser Glu  Ile Lys Arg Lys Lys  His Asp Lys Gln Glu  Gln Asn Lys
    1385                 1390                 1395

Asn Val  Gly Gly Gly Ala Phe  Lys Phe Cys Asn Phe  Ser Thr Pro
    1400                 1405                 1410

Asn Glu  Arg Ala Trp Ile Lys  Glu Lys Thr Val Ser  Asn Val Lys
    1415                 1420                 1425

Ser Ser  Gly Ser Lys Asp Ser  Ser Ser Lys Met Asn  Arg Val Leu
    1430                 1435                 1440

Ser Pro  Lys Glu Tyr Leu Ser  Arg Gln Lys His Lys  Glu Ala Leu
    1445                 1450                 1455

Lys Lys  Asn Tyr Leu Lys Asn  Ser Asp Ser Gln Tyr  Met Arg Pro
    1460                 1465                 1470
```

```
Ser Lys  Leu Ser Val Gln Val  Glu Ser Ser Gly Lys  Ser Asn Glu
    1475                1480                1485

Arg Pro  Asn Gly Ser Val Gln  Thr Cys Lys Glu Ser  Leu Asn Ile
    1490                1495                1500

Gly Thr  Gly His Gly Lys Ser  Ile Lys Thr His His  Ser Lys Glu
    1505                1510                1515

Ser Lys  Thr Tyr Ile Ser Arg  Asn Ile Lys Gly Thr  Val Gly Gly
    1520                1525                1530

Lys Gln  Ser Asp Lys Met Trp  Ile Asp Arg Thr Lys  Leu Asp Lys
    1535                1540                1545

Asn Leu  Asn Asn Ile Asn Asn  Glu Gly Glu Leu Ser  Gln Met Ser
    1550                1555                1560

Ser Gln  Thr Lys Asp Gln Arg  Lys Leu Tyr Leu Asn  Arg Val Ala
    1565                1570                1575

Phe Lys  Cys Thr Glu Arg Glu  Arg Ile Cys Leu Thr  Lys Leu Asp
    1580                1585                1590

Asn Ser  Pro Arg Lys Leu Lys  Glu Lys Arg Pro Glu  Ser Lys Cys
    1595                1600                1605

Lys Asn  Pro Leu Pro Val Lys  Asp Thr Thr Glu Lys  Leu Ser Met
    1610                1615                1620

Leu Glu  Phe Lys Leu Cys Pro  Asp Gly Val Phe Lys  Asn Thr Asn
    1625                1630                1635

Thr Val  Glu Asp Gln Lys Asp  Leu Gln His Thr Pro  Arg Lys Glu
    1640                1645                1650
```

```
Gln Ala  Pro Val Gln Val Ser  Gly Ile Lys Ser Thr  Lys Glu Asp
    1655                1660                1665


Trp Leu  Lys Cys Val Thr Glu  Glu Lys Arg Met Pro  Glu Ala Asn
    1670                1675                1680


Gln Glu  Ile Asp Asp Asn Val  Leu Ala Asn Ser Arg  Leu Ser Lys
    1685                1690                1695


Arg Asn  Cys Ser Ala Asp Gly  Phe Glu Ile Leu Gln  Asn Pro Val
    1700                1705                1710


Lys Asp  Ser Lys Ala Met Phe  Gln Thr Tyr Lys Lys  Leu Tyr Met
    1715                1720                1725


Glu Lys  Arg Ser Arg Ser Leu  Gly Ser Ser Pro Leu  Glu
    1730                1735                1740
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<400>  16

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Pro Arg Lys Gln Thr Ser Phe Leu Glu Gln Ala Leu Val Ser Thr Leu
            20                  25                  30


Thr Thr Ser Gln Ser Pro Leu Asn His Pro Gly Ser Asn Gln Glu Ala
        35                  40                  45


Cys Leu Phe Leu Ser Asn Ser Asn Pro Val Ser Gln Pro Leu Leu Asn
    50                  55                  60


Asn Arg Asn Tyr Lys Thr Pro Gln Gln Ile Pro Ile Ser Asp Met His
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65 70 75 80

Ser Gly Thr Ile Val Thr Ser Gln Thr Ser Val Glu Arg Ile Thr Tyr
85 90 95

Thr Asn Val Lys Gly Pro Lys Gln Leu Asn Gln Asp Leu Gln Val Ser
100 105 110

Ser Gly Val Thr Gln Asp Met Trp Leu Asn Ser Pro Met Arg Asn Ser
115 120 125

Met Leu Ser His Thr Gly Ala Thr Val Ser His Gln Thr Gly Phe Gly
130 135 140

Thr Asn Pro Pro Asn Val His Ala Leu Gln Asn Gln Phe Val Thr Ser
145 150 155 160

Asp Thr Tyr Ser Met Gln Leu Gln Met Met Pro Ser Asn Ser Gly Arg
165 170 175

Ala Pro Ile Thr Tyr Gln Asp Asn Pro Arg Leu Asn Pro Pro Leu Ser
180 185 190

Glu Gln Gln Val Asp Trp Pro Gln Gln Cys Ala Ser Ser Gly Leu Ala
195 200 205

Tyr Pro Asn Tyr Arg Pro Leu Pro Lys Gln Tyr Gly Tyr Ser Ser Arg
210 215 220

Ser Phe Val Gln Gly Pro Thr Leu Pro Lys Gln Asn Thr Met Ser Ala
225 230 235 240

Gly Ser Leu Gln Val Lys Asn Ser Pro Ser Pro Asn Pro Val Leu Pro
245 250 255

Leu Gln Ser Lys Gln Ile Ala Thr Ile Pro Ser Tyr Gln Tyr Ala Val

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            260                 265                 270

Thr His Thr Asp Glu Arg Pro Pro Pro Pro Tyr Asp Cys Arg Tyr Ala
        275                 280                 285

Ser Gln Pro Leu Gln Ser Ile Gln His Val Val Lys Arg Ser Ser Met
    290                 295                 300

Asp Gly Pro Gln Thr Gln Glu Met Tyr Leu Pro Glu Met Gly Lys Asp
305                 310                 315                 320

Phe Cys Arg Gly Phe Gln Gln Gln Trp Gln Asn Ser Asn Glu Asn Phe
                325                 330                 335

Ser Met Met Gly Asn Thr Cys Asn Leu Lys Val Asn Thr Asn Val Gly
            340                 345                 350

Gln Pro Phe Asn Arg Pro Val Arg Ser Ser Leu Asp Ser Val Gln Ala
        355                 360                 365

Leu Gly Gln Asn Thr Gln Glu Lys Arg Val Asp Ser Gly Asn Leu Thr
    370                 375                 380

Ser Asn Gln Val Leu Asp Thr Arg Ala Lys Lys Lys Lys Leu Val Arg
385                 390                 395                 400

Asp Ile Lys Thr Leu Val Glu Ile Lys Lys Lys Phe Ser Asp Leu Ala
                405                 410                 415

Arg Lys Ile Lys Ile Asn Lys Ser Leu Leu Met Ala Ala Gly Cys Ile
            420                 425                 430

Lys Thr Thr Ser Ser Pro Tyr Ser Asn Thr Ala Gln Asn Ser Gln Phe
        435                 440                 445

Ser Leu Lys Gln Thr Ala Lys Val Gln Cys Gly Pro Gln Val Thr Ile
```

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    450                 455                 460

Val Thr Pro Glu Thr Met Glu Asn Lys Ser Pro Ile Val Met Glu Ser
465                 470                 475                 480

Ser Glu Val Ala Asn Lys Thr His Ser Pro Ser Asn Ser Asn Leu Gln
                485                 490                 495

Asp Arg His Phe Asn Gln Val Ser Ser Val Leu Leu Asn Ser Val Pro
            500                 505                 510

Ser Glu Lys Leu Pro Ile Pro Glu Gln Leu Arg Asp Leu Lys Val Val
        515                 520                 525

Thr Ser Ser Lys Met Ser Thr Val Glu Ile Pro His Ala Thr Ser Asn
    530                 535                 540

Asn Ile Gln Phe Ser Ser Gly Asn Leu Val Asn Ser Thr Lys Asn Val
545                 550                 555                 560

Pro Ala His Ser Glu Thr Thr Pro Leu Pro Gln Phe Met Thr Phe Glu
                565                 570                 575

Glu Tyr Ile Ser Lys His Pro Asn Lys Asn Arg Leu Val Leu Ser Leu
            580                 585                 590

Leu Ala Pro Gly Gly Lys Ile Glu Arg Lys Leu Leu Lys Asp Thr Ile
        595                 600                 605

Glu Thr Val Lys Asp Ser Lys Met Arg Ser Ser Asp Val Asn Pro Asn
    610                 615                 620

Thr Thr Asn Thr Gly Asn Leu Met Asn Leu Lys Thr Val Glu Thr Ala
625                 630                 635                 640

Ser Ala Cys Asn Ile Asn Ala Lys Ile Ser Asp Asn Ser Ser Gly Phe
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645 650 655

Glu His Lys Ser Leu Asn Gly Met Ser Ser Lys Ser Asp Ser His Phe
660 665 670

Ser Met Glu Leu Leu Ala Thr Cys Leu Ser Leu Trp Lys Lys Gln Pro
675 680 685

Ser Glu Pro Thr Val Glu Lys Gln Ser Asn Glu Ser Lys Thr Asn Arg
690 695 700

Ala Ala Ala Gly Val Ser Lys Pro Val Glu Val Cys Glu Thr Ser Pro
705 710 715 720

Phe Ser Ala Val Gly Asn Ser Gln Asn Lys Val Thr Ser Ser Ser Gln
725 730 735

Glu Thr Val Leu Ser Met Val Thr Gln Asn Phe Glu Ser Ser Gly Ser
740 745 750

Thr Thr Thr Lys Gly Ile Ala Val Val Ser Pro Leu Ile Leu Ser Asp
755 760 765

Val Lys Thr Leu Ser Val Lys Gly Ile Thr Pro Glu Ala Leu Pro Glu
770 775 780

Thr Ala Tyr Pro Val Ile Lys Glu Gly Ser Ile Cys Ser Leu Gln Asn
785 790 795 800

Lys Leu Glu Asn Thr Ala Ala Leu Lys Val Ser Val His Glu Pro Val
805 810 815

Thr Ser Thr Thr Ser Thr Lys Ile Phe Pro Leu Ile Gln Lys Glu Lys
820 825 830

Gln Asn Glu Ser Thr Asn Ala Asn Ser Glu Gly Thr Pro Asn Thr Ser

```
        835                 840                 845

Gln Gly Lys Tyr Asn Glu Thr Glu Pro Asp Val Gln Cys Pro Val Ser
    850                 855                 860

Asp Gln Gln Thr Ser Tyr Val Ser Lys Asp Ser Asp Asp Val His Ser
865                 870                 875                 880

Asp Val Leu Gln Ile Asp Asn Ile Cys Ser Leu Val Glu Gly Asp Thr
                885                 890                 895

Ser Tyr Asn Ser Gln Ile Ala Lys Ile Phe Asn Leu His Pro Leu Glu
            900                 905                 910

Lys Val Glu Gln Gln Lys Pro Leu Leu Ser His Gln Val Met Ser Ser
        915                 920                 925

Arg Gln Gln Asn Glu Gln Val Asp Val Thr Glu Ser Lys Asp Phe Asp
    930                 935                 940

Cys Gln Lys Asp Asn Phe Val Gln Cys Thr Asp Thr Ser His Glu Thr
945                 950                 955                 960

Ile Asp Gln Ser Met Leu Leu His Pro Pro Glu Ser Ser Ser Leu Lys
                965                 970                 975

Tyr Thr Glu Ala Lys Arg Gly Ile Pro Glu Glu Ser Ser Leu Glu Gln
            980                 985                 990

Ile Thr Glu Ile Glu Ser Leu Ala  Asp Asp Val Val Ser  Pro Ala Ala
        995                 1000                1005

Ile Gln  Gln Asp Asn Cys Pro  Gln Glu Thr Asp Met  Ser Cys Ser
    1010                1015                1020

Tyr Thr  Ala Gln Asp Pro Thr  Lys Asn Glu Leu Leu  Asp Asp Glu
```

```
    1025                1030                1035

Thr Ser  Ile Leu Tyr Leu Gln  Asp Gln Leu Ser Glu  Leu Leu Lys
    1040                1045                1050

Glu Phe  Pro Tyr Gly Ile Glu  Pro Val Asn Met His  Glu Gly Cys
    1055                1060                1065

Ala Val  Gln Gln Met Ala Asp  Pro Ile Ser Lys Pro  Gln Thr Cys
    1070                1075                1080

Glu His  Thr Gly Cys Asp Ser  Lys Asp Ser Thr Asp  Gln Ile Gln
    1085                1090                1095

Ile Thr  Ile Leu Asn Ser Glu  Gln Met Lys Glu Leu  Phe Pro Glu
    1100                1105                1110

Gln Asp  Gly Pro Pro Asn Glu  Val Asp Arg Leu Thr  Glu Leu Gln
    1115                1120                1125

Glu Glu  Lys Pro Val Thr Lys  Glu Gly Asn Gln Cys  Asp Pro Gln
    1130                1135                1140

Ala Arg  Thr Ile Glu Glu Ser  Cys Glu Ser Val Val  Leu Asp Ser
    1145                1150                1155

Glu Lys  Asp Asp Val Arg Cys  Cys Ala Leu Gly Trp  Leu Ser Met
    1160                1165                1170

Val Tyr  Glu Gly Val Pro Gln  Cys Gln Cys Asn Ser  Ile Lys Asn
    1175                1180                1185

Ser Ala  Ser Lys Glu Glu Lys  Gly Lys Asp Pro Cys  Ser Leu Glu
    1190                1195                1200

Ala Asn  Ala Asn Ser Tyr Lys  Arg Gly Glu Arg Thr  Ser Asp Gly
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Asp Asp Ser Val Thr Phe Glu Asn Pro Pro Asp Asn Gln Lys Leu
1220 1225 1230

Pro Leu Thr Phe Pro Val Glu Glu Lys His Phe Pro Glu Thr Glu
1235 1240 1245

Gly Gly Arg Asn Ile Asn Asp Lys Ser Glu Thr Glu Gln Asn Ser
1250 1255 1260

Ser Leu Arg Thr Glu Gln Glu Leu Pro Gly Gln Phe Leu Cys Lys
1265 1270 1275

Gly Gly Lys Arg Arg Asp Pro Leu Gln Arg His Lys Lys Lys Pro
1280 1285 1290

Leu Gln Phe His Glu Val Thr Phe Gln Ser Thr Asn Lys Thr Ile
1295 1300 1305

Lys Ile Cys Gln Glu Ser Leu Gln Arg Lys Leu Met Ala Gln Asn
1310 1315 1320

Leu Arg Pro Leu Lys Pro Lys Met Gly Phe Leu Thr Ser Lys Asn
1325 1330 1335

Lys Asp Leu His Val Lys Asn Ala Ser Leu Val Gln Ser Ile Thr
1340 1345 1350

Pro Glu Lys Arg Lys Leu Lys Ala Ala Gly Ser Lys His Lys Val
1355 1360 1365

Leu Glu Lys Arg Lys Leu Asp Asp Gly Ser Ile His Asp Ser Glu
1370 1375 1380

Val Lys Lys Lys Lys Tyr Asp Lys Gln Glu Gln Asn Lys Asn Val

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Gly Ser  Gly Thr Phe Lys Leu  Tyr Asn Phe Ser Thr  Pro Ser Glu
    1400                1405                1410

Arg Ala  Met Thr Lys Glu Lys  Thr Val Ser Asn Val  Lys Ser Ser
    1415                1420                1425

Gly Ser  Lys Asp Gly Ser Ser  Lys Ile Asn Arg Val  Leu Thr Ala
    1430                1435                1440

Lys Glu  Tyr Leu Ala Arg Gln  Lys His Lys Glu Ala  Val Ser Gly
    1445                1450                1455

Lys Thr  Leu Lys Lys Asn Cys  Leu Lys Asn Leu Pro  Cys Asp Ser
    1460                1465                1470

Gln Tyr  Lys Lys Ser Ser Lys  Leu Pro Val Arg Val  Gly Ser Cys
    1475                1480                1485

Gly Lys  Ser Ser Glu Arg Gln  Asn Ser Asn Val Gln  Thr Thr Lys
    1490                1495                1500

Glu Ser  Leu Pro Ile Ser Ser  Asn His Gly Lys Ser  Leu Lys Ile
    1505                1510                1515

His His  Ser Arg Asp Ser Lys  Thr His Ile Leu Arg  Asn Ile Lys
    1520                1525                1530

Gly Thr  Val Gly Gly Lys Gln  Pro Asp Lys Met Trp  Ile Asp Lys
    1535                1540                1545

Thr Lys  Ser Asp Lys Asn Val  Asn Asn Val Asn Asn  Glu Ala Glu
    1550                1555                1560

Phe Ser  Gln Met Ser Ser Gln  Ala Lys Asp Gln Arg  Lys Thr Tyr
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    1565                1570                1575

Leu Asn  Arg Val Gly Phe Lys  Cys Thr Glu Arg Glu  Arg Ile Cys
    1580                1585                1590

Leu Thr  Lys Leu Asp Gly Ser  Pro Arg Lys Leu Asn  Lys Glu Lys
    1595                1600                1605

Arg Pro  Glu Asn Lys Pro Lys  Asn His Val Pro Gly  Lys Asp Thr
    1610                1615                1620

Ser Glu  Lys Leu Ser Met Leu  Glu Phe Lys Leu Cys  Pro Asp Gly
    1625                1630                1635

Leu Phe  Lys Asn Pro Asn Pro  Val Glu Asp Gln Lys  Asp Leu Gln
    1640                1645                1650

Pro Cys  Pro Met Lys Glu Gln  Ala Pro Val Gln Val  Ser Gly Ile
    1655                1660                1665

Lys Ser  Thr Lys Glu Asp Trp  Leu Lys Cys Val Thr  Glu Glu Lys
    1670                1675                1680

Lys Ile  Pro Glu Pro Asn Gln  Glu Ile Asp Asp Val  Leu Ala Asn
    1685                1690                1695

Ser Arg  Leu Ser Lys Arg Ser  Phe Ser Ala Asp Gly  Tyr Glu Thr
    1700                1705                1710

Gln Gln  Asn Gln Val Lys Asp  Ser Lys Ala Met Phe  Gln Thr Tyr
    1715                1720                1725

Lys Lys  Met Tyr Met Glu Lys  Arg Ser Arg Ser Leu  Gly Ser Ser
    1730                1735                1740

Pro Leu  Glu
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1745

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<210> 20
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Arg Pro Trp Arg Lys Asn Ala Cys Cys Ser Thr Asn Thr Ser Gln Glu
        35                  40                  45

Ala His Lys Asp Val Ser Tyr Leu Tyr Arg Phe Asn Trp Asn His Cys
    50                  55                  60

Gly Glu Met Ala Pro Ala Cys Lys Arg His Phe Ile Gln Asp Thr Cys
65                  70                  75                  80

Leu Tyr Glu Cys Ser Pro Asn Leu Gly Pro Trp Ile Gln Gln Val Asp
                85                  90                  95

Gln Ser Trp Arg Lys Glu Arg Val Leu Asn Val Pro Leu Cys Lys Glu
            100                 105                 110

Asp Cys Glu Gln Trp Trp Glu Asp Cys Arg Thr Ser Tyr Thr Cys Lys
        115                 120                 125

Ser Asn Trp His Lys Gly Trp Asn Trp Thr Ser Gly Phe Asn Lys Cys
    130                 135                 140

Ala Val Gly Ala Ala Cys Gln Pro Phe His Phe Tyr Phe Pro Thr Pro
145                 150                 155                 160

Thr Val Leu Cys Asn Glu Ile Trp Thr His Ser Tyr Lys Val Ser Asn
                165                 170                 175

Tyr Ser Arg Gly Ser Gly Arg Cys Ile Gln Met Trp Phe Asp Pro Ala
            180                 185                 190
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Gln Gly Asn Pro Asn Glu Glu Val Ala Arg Phe Tyr Ala
        195                 200                 205
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<210> 21
<211> 27
<212> PRT
<213> Homo sapiens

<400> 21

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Ala Ala Met Ser Gly Ala Gly Pro Trp Ala Ala Trp Pro Phe Leu Leu
1               5                   10                  15

Ser Leu Ala Leu Met Leu Leu Trp Leu Leu Ser
            20                  25
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<210> 22
<211> 257
<212> PRT
<213> Homo sapiens

<400> 22

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Met Ala Gln Arg Met Thr Thr Gln Leu Leu Leu Leu Leu Val Trp Val
1               5                   10                  15

Ala Val Val Gly Glu Ala Gln Thr Arg Ile Ala Trp Ala Arg Thr Glu
            20                  25                  30

Leu Leu Asn Val Cys Met Asn Ala Lys His His Lys Glu Lys Pro Gly
        35                  40                  45

Pro Glu Asp Lys Leu His Glu Gln Cys Arg Pro Trp Arg Lys Asn Ala
    50                  55                  60

Cys Cys Ser Thr Asn Thr Ser Gln Glu Ala His Lys Asp Val Ser Tyr
65                  70                  75                  80

Leu Tyr Arg Phe Asn Trp Asn His Cys Gly Glu Met Ala Pro Ala Cys
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85 90 95

Lys Arg His Phe Ile Gln Asp Thr Cys Leu Tyr Glu Cys Ser Pro Asn
100 105 110

Leu Gly Pro Trp Ile Gln Gln Val Asp Gln Ser Trp Arg Lys Glu Arg
115 120 125

Val Leu Asn Val Pro Leu Cys Lys Glu Asp Cys Glu Gln Trp Trp Glu
130 135 140

Asp Cys Arg Thr Ser Tyr Thr Cys Lys Ser Asn Trp His Lys Gly Trp
145 150 155 160

Asn Trp Thr Ser Gly Phe Asn Lys Cys Ala Val Gly Ala Ala Cys Gln
165 170 175

Pro Phe His Phe Tyr Phe Pro Thr Pro Thr Val Leu Cys Asn Glu Ile
180 185 190

Trp Thr His Ser Tyr Lys Val Ser Asn Tyr Ser Arg Gly Ser Gly Arg
195 200 205

Cys Ile Gln Met Trp Phe Asp Pro Ala Gln Gly Asn Pro Asn Glu Glu
210 215 220

Val Ala Arg Phe Tyr Ala Ala Ala Met Ser Gly Ala Gly Pro Trp Ala
225 230 235 240

Ala Trp Pro Phe Leu Leu Ser Leu Ala Leu Met Leu Leu Trp Leu Leu
245 250 255

Ser

<210> 23

<211> 128
<212> DNA
<213> Cricetulus griseus

<400> 23
atgtttggtt ttcacaagcc aaagatgtac cgaagtatag agggctgctg tatctgcaga 60

gccaagtcct ccagctctcg gttcacggac agtaaacgtt atgaaaagga cttccagagc 120

tgttttgg 128

<210> 24
<211> 25
<212> DNA
<213> Cricetulus griseus

<400> 24
tgtaccgaag tatagagggc tgctg 25

<210> 25
<211> 25
<212> DNA
<213> Cricetulus griseus

<400> 25
tgtccgtgaa ccgagagctg gagga 25

<210> 26
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer 1

<400> 26
gtcccagcac tcatgaggat 20

<210> 27
<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Primer 2

<400> 27
cctcctagct ccaggtattt 20

<210> 28
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer 3

<400> 28
gaggacttgg ctctgcagat 20

<210> 29
<211> 20
<212> DNA
<213> Artificial Sequence

<220>
<223> Primer 4

<400> 29
ttccacagag cacagccgat 20

<210> 30
<211> 1080
<212> DNA
<213> Cricetulus griseus

<400> 30
ccttagtatt gggattttga ccagggtagt taatttcagt catcatttct aaactctaag 60

gttgtcatat ctgtgatttt cataccttcc taaaggtgac tgtatagaac ttcagttatc 120

aaagaacaca ccccccactt ccacagagca cagccgatat gtggagcctc ttgtgtcctg 180

ggaacagagt ggtcatagtg aatgcacact actttcccag cagggagttt aaagttttag 240

gtacattctt aatggcatgt gtgtatgggg gtgggcacag tagtaaagaa agtgccaaca 300

tgactgactg ctccatgatg tggttaaggt ttttattaga tgaacagcag ccagcaaact 360

gggcatggcc agggttctgt ctcttgagta ttgtggtata gttagttcct atgttgtgtg 420

atataagaaa caaaggaggt agtggatgcc tcctagctcc aggtattttc gaatgttttg 480

tatactggcc ctatggagta gtagatctgg ggaattcttg tagtttgttt gacttggcta 540

taaaattgta tgtgctggag gtagggtgga acagagaaaa gtccttgcat cgtttcttgt 600

catttccctt aacaaagctg tgccaattcc tttgtcttta caggtattgc tcagaagaaa 660

agatgtttgg ttttcacaag ccaaagatgt accgaagtat agagggctgc tgtatctgca 720

gagccaagtc ctccagctct cggttcacgg acagtaaacg ttatgaaaag gacttccaga 780

gctgttttgg gtaagattag ttatggtccc tcccccaccc cattacccct cactctccac 840

cgaggcaggg tttctctgta gcttaagagc ttgtcctgga actggctctg tagaccaggt 900

tagcctcaaa ctcacagaga tcctcatgag tgctgggact aaaggcatgc accaccacca 960

tccacctgta ttccattctt agagggaaaa ataatcagga ttgtgtggaa atgtttccat 1020

gcaaagcaat gggaacaatg tgctaatatt taaaatcact agttttctat tatttgggtt 1080

<210> 31
<211> 114
<212> DNA
<213> Cricetulus griseus

<400> 31
atgtttggtt ttcacaagcc aaagatgtac cgaagtatag agggctgctg tatcctccag 60

ctctcggttc acggacagta aacgttatga aaaggacttc cagagctgtt ttgg 114

<210> 32
<211> 123
<212> DNA
<213> Cricetulus griseus

<400> 32
atgtttggtt ttcacaagcc aaagatgtac cgaagtatag agggctgctg tatctgccaa 60

gtcctccagc tctcggttca cggacagtaa acgttatgaa aaggacttcc agagctgttt 120

tgg 123

<210> 33
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - METTL20_1 sense

<400> 33
cccugauguu guuagaggat t 21

<210> 34
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - METTL20_1 antisense

<400> 34
uccucuaaca acaucagggt t 21

<210> 35
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - C12orf35_1 sense

<400> 35
cauccagaca aaucuuacat t 21

<210> 36
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - C12orf35_1 antisense

<400> 36
uguaagauuu gucuggaugt g 21

<210> 37
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - C12orf35_2 sense

<400> 37
ccagaaagau aaaucuacat t 21

<210> 38
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - C12orf35_2 antisense

<400> 38
uguagauuua ucuuucuggt a 21

<210> 39
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Caprin2_6 sense

<400> 39
ugaccugccc ugaaagaaat t 21

<210> 40
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Caprin2_6 antisense

<400> 40
uuucuuucag ggcaggucag t 21

<210> 41
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> siRNA - FAM60A Sense

<400> 41
gcuuccagcu cuaacagaat t 21

<210> 42
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> siRNA - FAM60A Antisense

<400> 42
uucuguuaga gcuggaagcc a 21

<210> 43
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_1 sense

<400> 43
gacccgaacu uugacccuat t 21

<210> 44
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_1 antisense

<400> 44
uagggucaaa guucggguct g 21

<210> 45
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_2 sense

<400> 45
cggagacucu ucaaauugat t 21

<210> 46
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_2 antisense

<400> 46
ucaauuugaa gagucuccgg a 21

<210> 47
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_3 sense

<400> 47
gccugauuga agacgaggat t 21

<210> 48
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - IPO8_3 antisense

<400> 48
uccucgucuu caaucaggct t 21

<210> 49
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Dennd5b_2 sense

<400> 49
gggucucccu uauucaagat t 21

<210> 50
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Dennd5b_2 antisense

<400> 50
ucuugaauaa gggagaccct g 21

<210> 51
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Amn1_4 sense

<400> 51
gcugcuuaag uauuacugat t 21

<210> 52
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - Amn1_4 antisense

<400> 52
ucaguaauac uuaagcagcc a 21

<210> 53
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - TMTC1_1 sense

<400> 53
guauaccugu gauaaaacat t 21

<210> 54
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - TMTC1_1 antisense

<400> 54
uguuuuauca cagguauaca t 21

<210> 55
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - TMTC1_2 sense

<400> 55
cggugaaugu cauucuacat t 21

<210> 56
<211> 21
<212> DNA
<213> Artificial

<220>
<223> siRNA - TMTC1_2 antisense

<400> 56
uguagaauga cauucaccgc a 21

<210> 57
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR20 forward primer

<400> 57
accagtgaat aatcgtgttt 20

<210> 58
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR20 reverse primer

<400> 58
ctatgagtca atgtcccaag 20

<210> 59
<211> 23
<212> DNA
<213> Artificial

<220>
<223> PCR28 forward primer

<400> 59
cacacacaac ctcctaacaa ccc 23

<210> 60
<211> 20
<212> DNA
<213> Artificial

<220>
<223> PCR28 reverse primer

<400> 60
ttccgcaccg actcagttct 20