SEQUENCE LISTING

<110> The Regents of the University of California

<120> TARGETED GENE DEMETHYLATION IN PLANTS

<130> 262232001340

<140> Not Yet Assigned
<141> Concurrently Herewith

<150> US 62/450,929
<151> 2017-01-26

<150> US 62/547,053
<151> 2017-08-17

<160> 194

<170> FastSEQ for Windows Version 4.0

<210> 1
<211> 2136
<212> PRT
<213> Homo sapiens

<400> 1
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Asp Val Asn Lys Lys Lys Lys Asn Ser Gln Leu Arg Lys Thr Thr Lys
            20                  25                  30
Gly Ala Asn Lys Asn Val Ala Ser Val Lys Thr Leu Ser Pro Gly Lys
        35                  40                  45
Leu Lys Gln Leu Ile Gln Glu Arg Asp Val Lys Lys Lys Thr Glu Pro
    50                  55                  60
Lys Pro Pro Val Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala
65                  70                  75                  80
Arg Met Asn Leu Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser
                85                  90                  95
Leu Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser
            100                 105                 110
Arg Arg Leu Ser Gln Pro Pro Leu Val Val Ala Lys Ser Lys Lys Val
        115                 120                 125
Pro Leu Ser Lys Gly Leu Glu Lys Gln His Asp Cys Asp Tyr Lys Ile
    130                 135                 140
Leu Pro Ala Leu Gly Val Lys His Ser Glu Asn Asp Ser Val Pro Met
145                 150                 155                 160
Gln Asp Thr Gln Val Leu Pro Asp Ile Glu Thr Leu Ile Gly Val Gln
```

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                165                 170                 175
Asn Pro Ser Leu Leu Lys Gly Lys Ser Gln Glu Thr Thr Gln Phe Trp
            180                 185                 190
Ser Gln Arg Val Glu Asp Ser Lys Ile Asn Ile Pro Thr His Ser Gly
        195                 200                 205
Pro Ala Ala Glu Ile Leu Pro Gly Pro Leu Glu Gly Thr Arg Cys Gly
    210                 215                 220
Glu Gly Leu Phe Ser Glu Glu Thr Leu Asn Asp Thr Ser Gly Ser Pro
225                 230                 235                 240
Lys Met Phe Ala Gln Asp Thr Val Cys Ala Pro Phe Pro Gln Arg Ala
                245                 250                 255
Thr Pro Lys Val Thr Ser Gln Gly Asn Pro Ser Ile Gln Leu Glu Glu
            260                 265                 270
Leu Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Leu Asp
        275                 280                 285
Pro Ile Lys Ser Glu His Asp Cys Tyr Pro Thr Ser Ser Leu Asn Lys
    290                 295                 300
Val Ile Pro Asp Leu Asn Leu Arg Asn Cys Leu Ala Leu Gly Gly Ser
305                 310                 315                 320
Thr Ser Pro Thr Ser Val Ile Lys Phe Leu Leu Ala Gly Ser Lys Gln
                325                 330                 335
Ala Thr Leu Gly Ala Lys Pro Asp His Gln Glu Ala Phe Glu Ala Thr
            340                 345                 350
Ala Asn Gln Gln Glu Val Ser Asp Thr Thr Ser Phe Leu Gly Gln Ala
        355                 360                 365
Phe Gly Ala Ile Pro His Gln Trp Glu Leu Pro Gly Ala Asp Pro Val
    370                 375                 380
His Gly Glu Ala Leu Gly Glu Thr Pro Asp Leu Pro Glu Ile Pro Gly
385                 390                 395                 400
Ala Ile Pro Val Gln Gly Glu Val Phe Gly Thr Ile Leu Asp Gln Gln
                405                 410                 415
Glu Thr Leu Gly Met Ser Gly Ser Val Val Pro Asp Leu Pro Val Phe
            420                 425                 430
Leu Pro Val Pro Pro Asn Pro Ile Ala Thr Phe Asn Ala Pro Ser Lys
        435                 440                 445
Trp Pro Glu Pro Gln Ser Thr Val Ser Tyr Gly Leu Ala Val Gln Gly
    450                 455                 460
Ala Ile Gln Ile Leu Pro Leu Gly Ser Gly His Thr Pro Gln Ser Ser
465                 470                 475                 480
Ser Asn Ser Glu Lys Asn Ser Leu Pro Pro Val Met Ala Ile Ser Asn
                485                 490                 495
Val Glu Asn Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Thr
            500                 505                 510
Gln Gly Phe Pro Leu Ala Pro Glu Arg Gly Leu Phe His Ala Ser Leu
        515                 520                 525
Gly Ile Ala Gln Leu Ser Gln Ala Gly Pro Ser Lys Ser Asp Arg Gly
    530                 535                 540
Ser Ser Gln Val Ser Val Thr Ser Thr Val His Val Val Asn Thr Thr
545                 550                 555                 560
Val Val Thr Met Pro Val Pro Met Val Ser Thr Ser Ser Ser Ser Tyr
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                565                 570                 575
Thr Thr Leu Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly
            580                 585                 590
Val Cys Glu Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr
        595                 600                 605
Cys Lys Asn Arg Lys Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys
    610                 615                 620
Glu Glu Leu Lys Lys Lys Pro Ser Val Val Val Pro Leu Glu Val Ile
625                 630                 635                 640
Lys Glu Asn Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys
                645                 650                 655
Ala Asp Phe Asp Asn Lys Pro Val Asn Gly Pro Lys Ser Glu Ser Met
            660                 665                 670
Asp Tyr Ser Arg Cys Gly His Gly Glu Glu Gln Lys Leu Glu Leu Asn
        675                 680                 685
Pro His Thr Val Glu Asn Val Thr Lys Asn Glu Asp Ser Met Thr Gly
    690                 695                 700
Ile Glu Val Glu Lys Trp Thr Gln Asn Lys Lys Ser Gln Leu Thr Asp
705                 710                 715                 720
His Val Lys Gly Asp Phe Ser Ala Asn Val Pro Glu Ala Glu Lys Ser
                725                 730                 735
Lys Asn Ser Glu Val Asp Lys Lys Arg Thr Lys Ser Pro Lys Leu Phe
            740                 745                 750
Val Gln Thr Val Arg Asn Gly Ile Lys His Val His Cys Leu Pro Ala
        755                 760                 765
Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu Glu Phe Gly Lys
    770                 775                 780
Thr Leu Glu Asn Asn Ser Tyr Lys Phe Leu Lys Asp Thr Ala Asn His
785                 790                 795                 800
Lys Asn Ala Met Ser Ser Val Ala Thr Asp Met Ser Cys Asp His Leu
                805                 810                 815
Lys Gly Arg Ser Asn Val Leu Val Phe Gln Gln Pro Gly Phe Asn Cys
            820                 825                 830
Ser Ser Ile Pro His Ser Ser His Ser Ile Ile Asn His His Ala Ser
        835                 840                 845
Ile His Asn Glu Gly Asp Gln Pro Lys Thr Pro Glu Asn Ile Pro Ser
    850                 855                 860
Lys Glu Pro Lys Asp Gly Ser Pro Val Gln Pro Ser Leu Leu Ser Leu
865                 870                 875                 880
Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu Ala
                885                 890                 895
Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser Lys
            900                 905                 910
Ser Glu Lys Asp Glu Glu Ser Glu Gln Arg Thr Ala Ser Leu Leu Asn
        915                 920                 925
Ser Cys Lys Ala Ile Leu Tyr Thr Val Arg Lys Asp Leu Gln Asp Pro
    930                 935                 940
Asn Leu Gln Gly Glu Pro Pro Lys Leu Asn His Cys Pro Ser Leu Glu
945                 950                 955                 960
Lys Gln Ser Ser Cys Asn Thr Val Val Phe Asn Gly Gln Thr Thr Thr
```

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                965                 970                 975
Leu Ser Asn Ser His Ile Asn Ser Ala Thr Asn Gln Ala Ser Thr Lys
            980                 985                 990
Ser His Glu Tyr Ser Lys Val Thr Asn Ser Leu Ser Leu Phe Ile Pro
        995                 1000                1005
Lys Ser Asn Ser Ser Lys Ile Asp Thr Asn Lys Ser Ile Ala Gln Gly
    1010                1015                1020
Ile Ile Thr Leu Asp Asn Cys Ser Asn Asp Leu His Gln Leu Pro Pro
1025                1030                1035                1040
Arg Asn Asn Glu Val Glu Tyr Cys Asn Gln Leu Leu Asp Ser Ser Lys
                1045                1050                1055
Lys Leu Asp Ser Asp Asp Leu Ser Cys Gln Asp Ala Thr His Thr Gln
            1060                1065                1070
Ile Glu Glu Asp Val Ala Thr Gln Leu Thr Gln Leu Ala Ser Ile Ile
        1075                1080                1085
Lys Ile Asn Tyr Ile Lys Pro Glu Asp Lys Lys Val Glu Ser Thr Pro
    1090                1095                1100
Thr Ser Leu Val Thr Cys Asn Val Gln Gln Lys Tyr Asn Gln Glu Lys
1105                1110                1115                1120
Gly Thr Ile Gln Gln Lys Pro Pro Ser Ser Val His Asn Asn His Gly
                1125                1130                1135
Ser Ser Leu Thr Lys Gln Lys Asn Pro Thr Gln Lys Lys Thr Lys Ser
            1140                1145                1150
Thr Pro Ser Arg Asp Arg Arg Lys Lys Lys Pro Thr Val Val Ser Tyr
        1155                1160                1165
Gln Glu Asn Asp Arg Gln Lys Trp Glu Lys Leu Ser Tyr Met Tyr Gly
    1170                1175                1180
Thr Ile Cys Asp Ile Trp Ile Ala Ser Lys Phe Gln Asn Phe Gly Gln
1185                1190                1195                1200
Phe Cys Pro His Asp Phe Pro Thr Val Phe Gly Lys Ile Ser Ser Ser
                1205                1210                1215
Thr Lys Ile Trp Lys Pro Leu Ala Gln Thr Arg Ser Ile Met Gln Pro
            1220                1225                1230
Lys Thr Val Phe Pro Pro Leu Thr Gln Ile Lys Leu Gln Arg Tyr Pro
        1235                1240                1245
Glu Ser Ala Glu Glu Lys Val Lys Val Glu Pro Leu Asp Ser Leu Ser
    1250                1255                1260
Leu Phe His Leu Lys Thr Glu Ser Asn Gly Lys Ala Phe Thr Asp Lys
1265                1270                1275                1280
Ala Tyr Asn Ser Gln Val Gln Leu Thr Val Asn Ala Asn Gln Lys Ala
                1285                1290                1295
His Pro Leu Thr Gln Pro Ser Ser Pro Pro Asn Gln Cys Ala Asn Val
            1300                1305                1310
Met Ala Gly Asp Asp Gln Ile Arg Phe Gln Gln Val Val Lys Glu Gln
        1315                1320                1325
Leu Met His Gln Arg Leu Pro Thr Leu Pro Gly Ile Ser His Glu Thr
    1330                1335                1340
Pro Leu Pro Glu Ser Ala Leu Thr Leu Arg Asn Val Asn Val Val Cys
1345                1350                1355                1360
Ser Gly Gly Ile Thr Val Val Ser Thr Lys Ser Glu Glu Glu Val Cys
```

```
                1365                1370                1375
Ser Ser Ser Phe Gly Thr Ser Glu Phe Ser Thr Val Asp Ser Ala Gln
            1380                1385                1390
Lys Asn Phe Asn Asp Tyr Ala Met Asn Phe Phe Thr Asn Pro Thr Lys
        1395                1400                1405
Asn Leu Val Ser Ile Thr Lys Asp Ser Glu Leu Pro Thr Cys Ser Cys
    1410                1415                1420
Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu
1425                1430                1435                1440
Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg
                1445                1450                1455
Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr
            1460                1465                1470
Gly Lys Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val
        1475                1480                1485
Leu Arg Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln
    1490                1495                1500
Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met
1505                1510                1515                1520
Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu
                1525                1530                1535
Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg
            1540                1545                1550
Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro
        1555                1560                1565
Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr
    1570                1575                1580
Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg
1585                1590                1595                1600
Ile Asp Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu
                1605                1610                1615
Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro
            1620                1625                1630
Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys
        1635                1640                1645
Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys
    1650                1655                1660
Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn
1665                1670                1675                1680
Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu
                1685                1690                1695
Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys
            1700                1705                1710
Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys
        1715                1720                1725
Ile Lys Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg
    1730                1735                1740
Thr Cys Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala
1745                1750                1755                1760
Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys
```

```
                1765                1770                1775
Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn
            1780                1785                1790
Ser Lys Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val
        1795                1800                1805
Gln Pro Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser
    1810                1815                1820
Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro
1825                1830                1835                1840
Val Lys Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser
                1845                1850                1855
Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe
            1860                1865                1870
Ser Glu Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu
        1875                1880                1885
Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu
    1890                1895                1900
Gly Glu Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro
1905                1910                1915                1920
Leu Ile Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro
                1925                1930                1935
His Gln Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu
            1940                1945                1950
Ala Ser Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu
        1955                1960                1965
Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu
    1970                1975                1980
Glu Lys Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile
1985                1990                1995                2000
Phe Leu Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly
                2005                2010                2015
Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro
            2020                2025                2030
Val Glu His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe
        2035                2040                2045
Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn
    2050                2055                2060
Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala
2065                2070                2075                2080
Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser
                2085                2090                2095
Glu Val Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu
            2100                2105                2110
Thr His Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val
        2115                2120                2125
Ala Gly Pro Tyr Asn His Trp Val
    2130                2135
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<210> 2

<211> 2136
<212> PRT
<213> Pan paniscus

<220>
<221> VARIANT
<222> 23
<223> Xaa = Any Amino Acid

<400> 2
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 1   5   10   15
Asp Val Asn Lys Lys Arg Xaa Asn Ser Gln Leu Arg Lys Thr Thr Lys
            20   25   30
Gly Ala Asn Lys Asn Val Ala Ser Val Lys Thr Leu Ser Pro Gly Lys
        35   40   45
Leu Lys Gln Leu Ile Gln Glu Arg Asp Val Lys Lys Lys Thr Glu Pro
    50   55   60
Lys Pro Pro Met Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala
65   70   75   80
Arg Met Asn Leu Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser
                85   90   95
Leu Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser
            100   105   110
Arg Arg Leu Ser Gln Pro Pro Leu Val Ile Ala Lys Ser Lys Lys Val
        115   120   125
Pro Leu Ser Lys Gly Ser Glu Lys Gln His Asp Cys Asp Tyr Lys Ile
    130   135   140
Leu Pro Asp Leu Gly Val Lys His Ser Glu Asn Asp Ser Val Pro Met
145   150   155   160
Gln Asp Thr Gln Val Leu Pro Asp Ile Glu Thr Leu Ile Gly Val Gln
                165   170   175
Asn Pro Ser Leu Leu Lys Gly Lys Ser Gln Glu Thr Thr Gln Phe Trp
            180   185   190
Ser Gln Arg Val Glu Asp Ser Lys Ile Asn Ile Pro Thr His Ser Gly
        195   200   205
Pro Ala Ala Glu Ile Leu Pro Gly Pro Leu Glu Gly Thr Arg Cys Gly
    210   215   220
Glu Gly Leu Phe Ser Glu Glu Thr Leu Asn Asp Thr Ser Gly Ser Pro
225   230   235   240
Lys Met Phe Ala Gln Asp Thr Val Cys Ala Pro Phe Pro Gln Arg Ala
                245   250   255
Thr Pro Lys Val Thr Ser Gln Gly Asn Pro Ser Ile Gln Leu Glu Glu
            260   265   270
Leu Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Leu Asp
        275   280   285
Pro Ile Lys Ser Glu His Asp Cys Tyr Pro Thr Ser Ser Leu Asn Lys
    290   295   300
Val Ile Pro Asp Leu Asn Leu Arg Asn Cys Leu Ala Leu Gly Gly Ser
305   310   315   320

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Thr Ser Pro Thr Ser Val Ile Lys Phe Leu Leu Ala Gly Ser Lys Gln
                325                 330                 335
Ala Thr Leu Gly Ala Lys Pro Asp His Gln Glu Ala Phe Glu Ala Thr
            340                 345                 350
Ala Asn Gln Gln Glu Val Ser Asp Thr Thr Ser Phe Leu Gly Gln Ala
        355                 360                 365
Phe Gly Ala Ile Pro His Gln Trp Glu Leu Pro Gly Ala Asp Pro Val
    370                 375                 380
His Gly Glu Ala Leu Gly Glu Thr Pro Asp Leu Pro Glu Ile Pro Gly
385                 390                 395                 400
Ala Ile Pro Val Gln Gly Glu Val Phe Gly Thr Ile Leu Asp Gln Gln
                405                 410                 415
Glu Thr Leu Gly Met Ser Gly Ser Val Val Pro Asp Leu Pro Val Phe
            420                 425                 430
Leu Pro Val Pro Pro Asn Pro Ile Ala Thr Phe Asn Ala Pro Ser Lys
        435                 440                 445
Trp Pro Glu Pro Gln Ser Thr Val Ser Tyr Gly Leu Ala Val Gln Gly
    450                 455                 460
Ala Ile Gln Ile Leu Pro Leu Gly Ser Gly His Thr Pro Gln Ser Ser
465                 470                 475                 480
Ser Asn Ser Glu Lys Asn Ser Leu Pro Pro Val Met Ala Ile Ser Asn
                485                 490                 495
Val Glu Asn Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Thr
            500                 505                 510
Gln Gly Phe Pro Leu Ala Pro Glu Arg Gly Leu Phe His Ala Ser Leu
        515                 520                 525
Gly Val Ala Gln Leu Ser Gln Ala Gly Pro Ser Lys Ser Asp Arg Gly
    530                 535                 540
Ser Ser His Val Ser Val Thr Ser Thr Val His Val Val Asn Thr Thr
545                 550                 555                 560
Val Val Thr Met Pro Val Pro Met Val Ser Thr Ser Ser Ser Ser Tyr
                565                 570                 575
Thr Thr Leu Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly
            580                 585                 590
Val Cys Glu Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr
        595                 600                 605
Cys Lys Asn Arg Lys Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys
    610                 615                 620
Glu Glu Leu Lys Lys Lys Pro Ser Val Val Val Pro Leu Glu Val Ile
625                 630                 635                 640
Lys Glu Asn Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys
                645                 650                 655
Ala Asp Phe Glu Asn Lys Pro Val Asn Gly Pro Lys Ser Glu Ser Met
            660                 665                 670
Asp Tyr Ser Arg Cys Gly His Gly Glu Glu Gln Lys Leu Glu Leu Asn
        675                 680                 685
Pro His Thr Val Glu Asn Val Thr Lys Asn Glu Asp Ser Met Thr Gly
    690                 695                 700
Ile Glu Val Glu Lys Trp Thr Gln Asn Lys Lys Ser Gln Leu Thr Asp
705                 710                 715                 720
```

```
His Val Lys Gly Asp Phe Ser Ala Asn Val Pro Glu Ala Glu Lys Ser
                725                 730                 735
Lys Asn Ser Glu Val Asp Lys Lys Arg Thr Lys Ser Pro Lys Leu Phe
            740                 745                 750
Val Gln Thr Val Arg Asn Gly Ile Lys His Val His Cys Leu Pro Ala
        755                 760                 765
Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu Glu Phe Gly Lys
    770                 775                 780
Thr Leu Glu Asn Asn Ser Tyr Lys Phe Leu Lys Asp Thr Ala Asn His
785                 790                 795                 800
Asn Asn Ala Met Ser Ser Val Ala Thr Asp Met Ser Cys Asp His Leu
                805                 810                 815
Lys Gly Arg Ser Asn Val Leu Val Phe Gln Gln Pro Gly Phe Asn Cys
            820                 825                 830
Ser Ser Ile Pro His Ser Ser His Ser Ile Ile Asn His His Ala Ser
        835                 840                 845
Ile His Asn Glu Gly Asp Gln Pro Lys Thr Pro Asp Asn Ile Pro Ser
    850                 855                 860
Lys Glu Pro Lys Asp Gly Ser Pro Val Gln Pro Ser Leu Leu Ser Leu
865                 870                 875                 880
Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu Ala
                885                 890                 895
Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser Lys
            900                 905                 910
Ser Glu Lys Asp Glu Glu Ser Glu Gln Arg Thr Ala Ser Leu Leu Asn
        915                 920                 925
Ser Cys Lys Ala Ile Leu Tyr Thr Val Arg Lys Asp Leu Gln Asp Pro
    930                 935                 940
Asn Leu Gln Gly Glu Pro Pro Lys Leu Asn His Cys Pro Ser Leu Glu
945                 950                 955                 960
Lys Gln Ser Ser Cys Asn Thr Val Val Phe Asn Gly Gln Thr Thr Thr
                965                 970                 975
Leu Ser Asn Ser His Ile Asn Ser Ala Thr Asn Gln Ala Ser Thr Lys
            980                 985                 990
Ser His Glu Tyr Ser Lys Val Thr Asn Ser Leu Ser Leu Phe Ile Pro
        995                 1000                1005
Lys Ser Asn Ser Ser Lys Ile Asp Thr Asn Lys Ser Ile Ala Gln Gly
    1010                1015                1020
Ile Ile Thr Leu Asp Asn Cys Ser Asn Asp Leu His Gln Leu Pro Pro
1025                1030                1035                1040
Arg Asn Asn Glu Val Glu Tyr Cys Asn Gln Leu Leu Asp Ser Ser Lys
                1045                1050                1055
Lys Leu Asp Ser Asp Asp Leu Ser Cys Gln Asp Ala Thr His Thr Gln
            1060                1065                1070
Ile Glu Glu Asp Val Ala Thr Gln Leu Thr Gln Leu Ala Ser Ile Ile
        1075                1080                1085
Lys Ile Asn Tyr Ile Lys Pro Glu Asp Lys Lys Val Glu Ser Thr Pro
    1090                1095                1100
Thr Ser Leu Val Thr Cys Asn Val Gln Gln Lys Tyr Asn Gln Glu Lys
1105                1110                1115                1120
```

```
Gly Thr Ile Gln Gln Lys Pro Pro Ser Ser Val His Asn Asn His Gly
                1125                1130                1135
Ser Ser Leu Thr Lys Gln Lys Asn Pro Thr Gln Lys Lys Thr Lys Ser
            1140                1145                1150
Thr Pro Ser Arg Asp Arg Arg Lys Lys Lys Pro Thr Val Val Ser Tyr
        1155                1160                1165
Gln Glu Asn Asp Arg Gln Lys Trp Glu Lys Leu Ser Tyr Met Tyr Gly
    1170                1175                1180
Thr Ile Cys Asp Ile Trp Ile Ala Ser Lys Phe Gln Asn Phe Gly Gln
1185                1190                1195                1200
Phe Cys Pro His Asp Phe Pro Thr Val Phe Gly Lys Ile Ser Ser Ser
                1205                1210                1215
Thr Lys Ile Trp Lys Pro Leu Ala Gln Thr Arg Ser Ile Met Gln Pro
            1220                1225                1230
Lys Thr Val Phe Pro Pro Leu Thr Gln Ile Lys Leu Gln Arg Tyr Pro
        1235                1240                1245
Glu Ser Ala Glu Glu Lys Val Lys Val Glu Pro Leu Asp Ser Leu Ser
    1250                1255                1260
Leu Phe His Leu Lys Thr Glu Ser Asn Gly Lys Ala Phe Thr Asp Lys
1265                1270                1275                1280
Ala Tyr Asn Ser Gln Val Gln Leu Thr Val Asn Ala Asn Gln Lys Ala
                1285                1290                1295
His Pro Leu Thr Gln Pro Ser Ser Pro Pro Asn Gln Cys Ala Asn Val
            1300                1305                1310
Met Ala Gly Asp Asp Gln Ile Arg Phe Gln Gln Val Val Lys Glu Gln
        1315                1320                1325
Leu Met His His Arg Leu Pro Thr Leu Pro Gly Ile Ser His Glu Thr
    1330                1335                1340
Pro Leu Pro Glu Ser Ala Leu Thr Leu Arg Asn Val Asn Val Val Cys
1345                1350                1355                1360
Ser Gly Gly Ile Thr Val Val Ser Thr Lys Ser Glu Glu Glu Val Cys
                1365                1370                1375
Ser Ser Ser Phe Gly Thr Ser Glu Phe Ser Thr Val Asp Ser Ala Gln
            1380                1385                1390
Lys Asn Phe Asn Asp Tyr Ala Met Asn Phe Phe Thr Asn Pro Thr Lys
        1395                1400                1405
Asn Leu Val Ser Ile Thr Lys Asp Ser Glu Leu Pro Thr Cys Ser Cys
    1410                1415                1420
Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu
1425                1430                1435                1440
Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg
                1445                1450                1455
Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr
            1460                1465                1470
Gly Lys Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val
        1475                1480                1485
Leu Arg Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln
    1490                1495                1500
Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met
1505                1510                1515                1520
```

```
Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu
                1525                1530                1535
Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg
            1540                1545                1550
Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro
        1555                1560                1565
Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr
    1570                1575                1580
Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg
1585                1590                1595                1600
Ile Asp Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu
                1605                1610                1615
Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro
            1620                1625                1630
Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys
        1635                1640                1645
Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys
    1650                1655                1660
Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn
1665                1670                1675                1680
Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu
                1685                1690                1695
Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys
            1700                1705                1710
Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys
        1715                1720                1725
Ile Lys Ser Gly Ala Ile Glu Val Leu Ala Pro Cys Arg Lys Lys Arg
    1730                1735                1740
Thr Cys Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala
1745                1750                1755                1760
Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys
                1765                1770                1775
Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn
            1780                1785                1790
Ser Lys Ala Ser Ser Leu Pro Thr Leu Gly Ser Lys Thr Glu Thr Val
        1795                1800                1805
Gln Pro Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser
    1810                1815                1820
Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro
1825                1830                1835                1840
Val Lys Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser
                1845                1850                1855
Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe
            1860                1865                1870
Ser Glu Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu
        1875                1880                1885
Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu
    1890                1895                1900
Gly Glu Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro
1905                1910                1915                1920
```

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Leu Ile Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro
                1925                1930                1935
His Gln Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu
            1940                1945                1950
Ala Ser Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu
        1955                1960                1965
Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu
    1970                1975                1980
Glu Lys Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile
1985                1990                1995                2000
Phe Leu Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly
                2005                2010                2015
Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro
            2020                2025                2030
Val Glu His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe
        2035                2040                2045
Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn
    2050                2055                2060
Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala
2065                2070                2075                2080
Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser
                2085                2090                2095
Glu Val Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu
            2100                2105                2110
Thr His Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val
        2115                2120                2125
Ala Gly Pro Tyr Asn His Trp Val
    2130                2135


<210> 3
<211> 2136
<212> PRT
<213> Gorilla gorilla gorilla

<400> 3
Met Ser Arg Ser Arg His Ala Arg Pro Ser Arg Leu Val Arg Lys Glu
 1               5                  10                  15
Asp Val Asn Lys Lys Lys Lys Asn Ser Gln Leu Arg Asn Thr Thr Lys
            20                  25                  30
Gly Ala Asn Lys Asn Val Ala Ser Val Lys Thr Leu Ser Pro Gly Lys
        35                  40                  45
Leu Lys Gln Leu Ile Gln Glu Arg Asp Val Lys Lys Lys Thr Glu Pro
    50                  55                  60
Lys Pro Pro Met Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala
65                  70                  75                  80
Arg Met Asn Leu Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser
                85                  90                  95
Leu Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser
            100                 105                 110
```

```
Arg Arg Leu Ser Gln Pro Pro Leu Val Val Ala Lys Ser Lys Lys Val
        115                 120                 125
Pro Leu Ser Lys Gly Leu Glu Lys Gln His Asp Cys Asp Tyr Lys Ile
    130                 135                 140
Leu Pro Asp Leu Gly Val Lys His Ser Glu Asn Asp Ser Val Pro Met
145                 150                 155                 160
Gln Asp Thr Gln Val Leu Pro Asp Ile Glu Thr Leu Ile Gly Val Gln
                165                 170                 175
Asn Pro Ser Leu Leu Lys Gly Lys Ser Gln Glu Thr Thr Gln Phe Trp
            180                 185                 190
Ser Gln Arg Val Glu Asp Ser Lys Ile Asn Ile Pro Thr His Ser Gly
        195                 200                 205
Pro Ala Ala Glu Ile Leu Pro Gly Pro Leu Glu Gly Thr Arg Cys Gly
    210                 215                 220
Glu Gly Leu Phe Ser Glu Glu Thr Leu Asn Asp Thr Ser Gly Ser Pro
225                 230                 235                 240
Lys Met Phe Ala Gln Asp Thr Val Cys Ala Pro Phe Pro Gln Arg Ala
                245                 250                 255
Thr Pro Lys Val Thr Ser Gln Gly Asn Pro Ser Asn Gln Leu Glu Glu
            260                 265                 270
Leu Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Leu Asp
        275                 280                 285
Pro Ile Lys Ser Glu His Asp Cys Tyr Pro Thr Ser Ser Leu Asn Lys
    290                 295                 300
Val Ile Pro Asp Leu Asn Leu Arg Asn Cys Leu Ala Leu Gly Gly Ser
305                 310                 315                 320
Thr Ser Pro Thr Ser Val Ile Lys Phe Leu Leu Ala Gly Ser Lys Gln
                325                 330                 335
Ala Thr Leu Gly Ala Lys Pro Asp His Gln Glu Ala Phe Glu Ala Thr
            340                 345                 350
Ala Asn Gln Gln Glu Val Ser Asp Thr Thr Ser Phe Leu Gly Gln Ala
        355                 360                 365
Phe Gly Ala Ile Pro His Gln Trp Glu Leu Pro Gly Ala Asp Pro Val
    370                 375                 380
His Gly Glu Ala Leu Gly Glu Thr Pro Asp Leu Pro Glu Ile Pro Gly
385                 390                 395                 400
Ala Ile Pro Val Gln Gly Glu Val Phe Gly Thr Ile Leu Asp Gln Gln
                405                 410                 415
Glu Thr Leu Gly Met Ser Gly Ser Val Val Pro Asp Leu Pro Val Phe
            420                 425                 430
Leu Pro Val Pro Pro Asn Pro Ile Ala Thr Phe Asn Ala Pro Ser Lys
        435                 440                 445
Trp Pro Glu Pro Gln Ser Thr Val Ser Tyr Gly Leu Ala Val Gln Gly
    450                 455                 460
Ala Ile Gln Ile Leu Pro Leu Gly Ser Gly His Thr Pro Gln Ser Ser
465                 470                 475                 480
Ser Asn Ser Glu Lys Asn Ser Leu Pro Pro Val Met Ala Ile Ser Asn
                485                 490                 495
Val Glu Asn Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Thr
            500                 505                 510
```

```
Gln Gly Phe Pro Leu Ala Ser Glu Arg Gly Leu Phe His Ala Ser Leu
        515                 520                 525
Gly Val Ala Gln Leu Ser Gln Ala Gly Pro Ser Lys Ser Asp Arg Gly
    530                 535                 540
Ser Ser Gln Val Ser Val Thr Ser Thr Val His Val Val Asn Thr Thr
545                 550                 555                 560
Val Val Thr Met Pro Val Pro Met Val Ser Thr Ser Ser Ser Ser Tyr
                565                 570                 575
Thr Thr Leu Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly
            580                 585                 590
Val Cys Glu Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr
        595                 600                 605
Cys Lys Asn Arg Lys Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys
    610                 615                 620
Glu Glu Leu Lys Lys Lys Pro Ser Val Ala Val Pro Leu Glu Val Ile
625                 630                 635                 640
Lys Glu Asn Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys
                645                 650                 655
Ala Asp Phe Asp Asn Lys Pro Val Asn Gly Pro Lys Ser Glu Ser Met
            660                 665                 670
Asp Tyr Ser Arg Cys Gly His Gly Glu Glu Gln Lys Leu Glu Leu Asn
        675                 680                 685
Pro His Thr Val Glu Asn Val Thr Lys Asn Glu Asp Ser Met Thr Gly
    690                 695                 700
Ile Glu Val Glu Lys Trp Thr Gln Asn Lys Lys Ser Gln Leu Thr Asp
705                 710                 715                 720
His Val Lys Gly Asp Phe Ser Ala Asn Val Pro Glu Ala Glu Lys Ser
                725                 730                 735
Lys Asn Ser Glu Val Asp Lys Lys Arg Thr Lys Ser Pro Lys Leu Phe
            740                 745                 750
Val Gln Thr Ile Arg Asn Gly Ile Lys His Val His Cys Leu Pro Ala
        755                 760                 765
Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu Glu Phe Gly Lys
    770                 775                 780
Thr Leu Glu Asn Asn Ser Tyr Lys Phe Leu Lys Asp Thr Ala Asn His
785                 790                 795                 800
Asn Asn Ala Met Ser Ser Val Ala Thr Asp Met Ser Cys Asp His Leu
                805                 810                 815
Lys Gly Arg Ser Asn Val Leu Val Phe Gln Gln Pro Gly Phe Asn Cys
            820                 825                 830
Ser Ser Ile Pro His Ser Ser His Ser Ile Ile Asn His His Ala Ser
        835                 840                 845
Ile His Asn Glu Gly Asp Gln Pro Lys Thr Pro Glu Asn Ile Pro Ser
    850                 855                 860
Lys Glu Pro Lys Asp Gly Ser Pro Val Gln Pro Ser Leu Leu Ser Leu
865                 870                 875                 880
Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu Ala
                885                 890                 895
Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser Lys
            900                 905                 910
```

```
Ser Glu Lys Asp Glu Glu Ser Glu Gln Arg Thr Ala Ser Leu Leu Asn
        915                 920                 925
Ser Cys Lys Ala Ile Leu Tyr Thr Val Arg Lys Asp Leu Gln Asp Pro
    930                 935                 940
Asn Leu Gln Gly Glu Pro Pro Lys Leu Asn His Cys Pro Ser Leu Glu
945                 950                 955                 960
Lys Gln Ser Ser Cys Asn Thr Val Val Phe Asn Gly Gln Thr Thr Thr
                965                 970                 975
Leu Ser Asn Ser His Ile Asn Ser Ala Thr Asn Gln Ala Ser Thr Lys
            980                 985                 990
Ser His Glu Tyr Ser Lys Val Thr Asn Ser Leu Ser Leu Phe Ile Pro
        995                 1000                1005
Lys Ser Asn Ser Ser Lys Ile Asp Thr Asn Lys Ser Ile Ala Gln Gly
    1010                1015                1020
Ile Ile Thr Leu Asp Asn Cys Ser Asn Asp Leu His Gln Leu Pro Pro
1025                1030                1035                1040
Arg Asn Asn Glu Val Glu Tyr Cys Asn Gln Leu Leu Asp Ser Ser Lys
                1045                1050                1055
Lys Leu Asp Ser Asp Asp Leu Ser Cys Gln Asp Ala Thr His Thr Gln
            1060                1065                1070
Ile Glu Glu Asp Val Ala Thr Gln Leu Thr Gln Leu Ala Ser Ile Ile
        1075                1080                1085
Lys Ile Asn Tyr Ile Lys Pro Glu Asp Lys Lys Val Glu Asn Thr Pro
    1090                1095                1100
Thr Ser Leu Val Thr Cys Asn Val Gln Gln Lys Tyr Asn Gln Glu Lys
1105                1110                1115                1120
Gly Thr Ile Gln Gln Lys Pro Pro Ser Ser Val His Asn Asn His Gly
                1125                1130                1135
Ser Ser Leu Thr Lys Gln Lys Asn Pro Thr Gln Lys Lys Thr Lys Ser
            1140                1145                1150
Thr Pro Ser Arg Asp Arg Arg Lys Lys Lys Pro Thr Val Val Ser Tyr
        1155                1160                1165
Gln Glu Asn Asp Arg Gln Lys Trp Glu Lys Leu Ser Tyr Met Tyr Gly
    1170                1175                1180
Thr Ile Cys Asp Ile Trp Ile Ala Ser Lys Phe Gln Asn Phe Gly Gln
1185                1190                1195                1200
Phe Cys Pro His Asp Phe Pro Thr Val Phe Gly Lys Ile Ser Ser Ser
                1205                1210                1215
Thr Lys Ile Trp Lys Pro Leu Ala Gln Thr Arg Ser Ile Met Gln Pro
            1220                1225                1230
Lys Thr Val Phe Pro Pro Leu Thr Gln Ile Lys Leu Gln Arg Tyr Pro
        1235                1240                1245
Glu Ser Ala Glu Glu Lys Val Lys Val Glu Pro Leu Asp Ser Leu Ser
    1250                1255                1260
Leu Phe His Leu Lys Thr Glu Ser Asn Gly Lys Ala Phe Thr Asp Lys
1265                1270                1275                1280
Ala Tyr Asn Ser Gln Val Gln Leu Thr Val Asn Ala Asn Gln Lys Ala
                1285                1290                1295
His Pro Leu Thr Gln Pro Ser Ser Pro Pro Asn Gln Cys Ala Asn Val
            1300                1305                1310
```

```
Met Ala Gly Asp Asp Gln Ile Arg Phe Gln Gln Val Val Lys Glu Gln
        1315                1320                1325
Leu Met His Gln Arg Leu Pro Thr Leu Pro Gly Ile Ser His Glu Thr
    1330                1335                1340
Pro Leu Pro Glu Ser Ala Leu Thr Leu Arg Asn Val Asn Val Val Cys
1345                1350                1355                1360
Ser Gly Gly Ile Thr Val Val Ser Thr Lys Ser Glu Glu Glu Val Cys
                1365                1370                1375
Ser Ser Ser Phe Gly Thr Ser Glu Phe Ser Thr Val Asp Ser Ala Gln
            1380                1385                1390
Lys Asn Phe Asn Asp Tyr Ala Met Asn Phe Phe Thr Asn Pro Thr Lys
        1395                1400                1405
Asn Leu Val Ser Ile Thr Lys Asp Ser Glu Leu Pro Thr Cys Ser Cys
    1410                1415                1420
Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu
1425                1430                1435                1440
Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg
                1445                1450                1455
Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr
            1460                1465                1470
Gly Lys Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val
        1475                1480                1485
Leu Arg Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln
    1490                1495                1500
Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met
1505                1510                1515                1520
Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu
                1525                1530                1535
Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg
            1540                1545                1550
Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro
        1555                1560                1565
Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr
    1570                1575                1580
Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg
1585                1590                1595                1600
Ile Asp Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu
                1605                1610                1615
Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro
            1620                1625                1630
Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys
        1635                1640                1645
Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys
    1650                1655                1660
Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn
1665                1670                1675                1680
Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu
                1685                1690                1695
Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys
            1700                1705                1710
```

```
Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg Glu Gly Met Glu Ala Lys
        1715                1720                1725
Ile Lys Ser Gly Ala Ile Glu Val Leu Ala Pro Cys Arg Lys Lys Arg
    1730                1735                1740
Thr Cys Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala
1745                1750                1755                1760
Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys
                1765                1770                1775
Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn
            1780                1785                1790
Ser Lys Ala Ser Ser Leu Pro Thr Leu Gly Ser Lys Thr Glu Thr Val
        1795                1800                1805
Gln Pro Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser
    1810                1815                1820
Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro
1825                1830                1835                1840
Val Lys Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser
                1845                1850                1855
Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe
            1860                1865                1870
Ser Glu Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu
        1875                1880                1885
Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu
    1890                1895                1900
Gly Glu Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro
1905                1910                1915                1920
Leu Val Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro
                1925                1930                1935
His Gln Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu
            1940                1945                1950
Ala Ser Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu
        1955                1960                1965
Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp Leu Leu Ser Pro Ala Glu
    1970                1975                1980
Glu Lys Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile
1985                1990                1995                2000
Phe Leu Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly
                2005                2010                2015
Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro
            2020                2025                2030
Val Glu His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe
        2035                2040                2045
Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn
    2050                2055                2060
Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala
2065                2070                2075                2080
Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser
                2085                2090                2095
Glu Val Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu
            2100                2105                2110
```

```
Thr His Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val
        2115                2120                2125
Ala Gly Pro Tyr Asn His Trp Val
    2130                2135


<210> 4
<211> 2132
<212> PRT
<213> Mandrillus leucophaeus

<400> 4
Met Ser Arg Ser Arg His Ala Arg Pro Ser Arg Leu Val Arg Lys Glu
 1               5                  10                  15
Asp Val Asn Lys Lys Lys Lys Asn Ser Gln Leu Arg Lys Thr Thr Lys
            20                  25                  30
Gly Ala Asn Lys Asn Val Ala Ser Val Lys Thr Leu Ser Pro Gly Lys
        35                  40                  45
Leu Lys Gln Leu Ile Gln Glu Arg Asp Val Lys Lys Lys Thr Glu Pro
    50                  55                  60
Lys Pro Pro Met Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala
65                  70                  75                  80
Arg Met Asn Ser Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser
                85                  90                  95
Leu Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser
            100                 105                 110
Arg Arg Leu Ser Gln Pro Pro Leu Val Ile Ala Lys Ser Lys Lys Val
        115                 120                 125
Pro Leu Ser Lys Ser Leu Glu Lys Gln His Asp Cys Asp Tyr Lys Ile
    130                 135                 140
Leu Pro Asp Leu Gly Val Lys His Ser Glu Asn Asp Ser Val Pro Met
145                 150                 155                 160
Gln Asp Thr Gln Val Leu Pro Asp Ile Glu Thr Leu Ile Ser Ile Gln
                165                 170                 175
Asn Pro Ser Leu Leu Lys Gly Lys Ser Gln Glu Thr Thr Gln Ser Trp
            180                 185                 190
Ser Gln Arg Val Glu Asp Ser Lys Ile Asn Ile Pro Thr His Ser Gly
        195                 200                 205
Pro Ala Ala Glu Ile Leu Pro Gly Pro Leu Glu Gly Thr Cys Cys Asp
    210                 215                 220
Glu Gly Leu Phe Ser Glu Glu Thr Phe Asn Asp Thr Ser Gly Ser Pro
225                 230                 235                 240
Lys Met Phe Ala Gln Asp Thr Val Cys Ala Pro Phe Pro Gln Arg Ala
                245                 250                 255
Thr Pro Arg Val Thr Ser Gln Gly Asn Pro Ser Ile Gln Leu Glu Glu
            260                 265                 270
Leu Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Leu Asp
        275                 280                 285
Pro Ile Lys Ser Glu His Asn Cys Tyr Pro Thr Ser Ser Leu Asn Lys
    290                 295                 300
```

```
Val Ile Pro Glu Leu Asn Leu Arg Asn Cys Leu Ala Leu Gly Gly Ser
305                 310                 315                 320
Thr Ser Pro Thr Ser Val Ile Lys Phe Leu Leu Ala Gly Ser Lys Gln
                325                 330                 335
Ala Thr Leu Gly Ala Lys Pro Asp His Gln Glu Ala Phe Lys Ala Thr
            340                 345                 350
Ala Asn Gln Gln Glu Val Ser Asp Thr Thr Ser Phe Leu Gly Gln Ala
        355                 360                 365
Phe Gly Ala Ile Pro His Gln Trp Glu Leu Pro Gly Ala Asp Pro Val
    370                 375                 380
His Gly Glu Ala Leu Arg Glu Thr Pro Asp Leu Pro Glu Ile Arg Gly
385                 390                 395                 400
Ala Ile Pro Val Gln Gly Glu Val Phe Gly Thr Ile Leu Asp Gln Gln
                405                 410                 415
Glu Thr Leu Gly Met Ser Gly Ser Val Val Pro Asp Leu Pro Val Phe
            420                 425                 430
Leu Pro Val Ser Pro Asn Pro Val Ala Thr Phe Asn Ala Pro Ser Lys
        435                 440                 445
Trp Pro Glu Pro Gln Gly Ala Val Ser Tyr Gly Leu Ala Val Gln Gly
    450                 455                 460
Ala Ile Gln Ile Leu Pro Leu Gly Ser Gly His Thr Pro Gln Ser Ser
465                 470                 475                 480
Ser Ile Ser Glu Lys Asn Ser Leu Pro Pro Val Met Ala Ile Ser Asn
                485                 490                 495
Val Glu Asn Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Thr
            500                 505                 510
Gln Gly Phe Pro Leu Ala Pro Glu Arg Gly Leu Phe His Ala Ser Leu
        515                 520                 525
Gly Met Ala Gln Leu Ser Gln Ala Gly Pro Ser Lys Ser Asp Arg Gly
    530                 535                 540
Ser Ser Gln Val Ser Val Thr Ser Thr Val His Val Val Asn Thr Thr
545                 550                 555                 560
Val Val Thr Ile Pro Val Pro Met Val Ser Thr Ser Ser Ser Ser Tyr
                565                 570                 575
Thr Thr Leu Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly
            580                 585                 590
Val Cys Glu Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr
        595                 600                 605
Cys Lys Asn Arg Lys Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys
    610                 615                 620
Glu Glu Leu Lys Lys Lys Pro Ser Val Leu Val Pro Leu Glu Val Ile
625                 630                 635                 640
Lys Glu Asn Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys
                645                 650                 655
Ala Asp Phe Asp Asn Lys Pro Val Asn Gly Pro Lys Ser Glu Ser Met
            660                 665                 670
Asp Tyr Ser Arg Cys Gly His Gly Glu Glu Gln Lys Leu Glu Leu Asn
        675                 680                 685
Pro His Pro Val Glu Asn Val Thr Lys Asn Glu Asp Ser Met Thr Gly
    690                 695                 700
```

```
Ile Glu Val Glu Lys Trp Thr Gln Asn Lys Lys Ser His Leu Thr Asp
705                 710                 715                 720
His Val Lys Gly Asp Phe Ser Ala Asn Val Pro Glu Ala Glu Lys Ser
                725                 730                 735
Lys Asn Ser Glu Val Asp Lys Lys Gln Thr Lys Ser Pro Lys Leu Phe
            740                 745                 750
Val Gln Thr Ile Arg Asn Gly Ile Lys His Val His Tyr Leu Pro Ala
        755                 760                 765
Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu Glu Phe Gly Lys
    770                 775                 780
Thr Leu Glu Asn Ser Ser Tyr Lys Phe Pro Lys Asp Thr Ala Asn His
785                 790                 795                 800
Asn Asn Ala Met Ser Ser Val Ala Thr Asp Met Ser Cys Asp His Leu
                805                 810                 815
Lys Gly Arg Ser Asn Val Leu Val Phe Gln Gln Pro Gly Phe Asn Cys
            820                 825                 830
Asn Ser Ile Pro His Ser Ser His Ser Asn Ile His Arg His Ala Ser
        835                 840                 845
Ile His Asn Glu Gly Asp Gln Pro Lys Thr Pro Glu Asn Ile Pro Ser
    850                 855                 860
Lys Glu Pro Lys Asp Gly Ser Pro Val Gln Pro Ser Leu Leu Ser Leu
865                 870                 875                 880
Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu Ala
                885                 890                 895
Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser Lys
            900                 905                 910
Ser Glu Lys Asp Glu Glu Ser Glu Gln Arg Thr Ala Ser Leu Leu Asn
        915                 920                 925
Ser Cys Lys Ala Ile Leu Tyr Thr Val Arg Lys Asp Leu Gln Asp Pro
    930                 935                 940
Asn Leu Gln Gly Glu Pro Gln Lys Leu His His Cys Pro Ser Leu Glu
945                 950                 955                 960
Lys Gln Ser Ser Cys Asn Thr Val Val Phe Asn Gly Gln Ala Asn Ser
                965                 970                 975
His Ile Ser Ser Ala Thr Asn Gln Ala Ser Thr Lys Ser His Glu Tyr
            980                 985                 990
Ser Lys Leu Thr Asn Ser Leu Ser Leu Phe Ile Pro Lys Ser Asn Ser
        995                 1000                1005
Pro Lys Ile Asp Thr Asn Lys Ser Ile Ala Gln Gly Ile Ile Thr Leu
    1010                1015                1020
Asp Asn Cys Ser Asn Asp Leu His Gln Leu Pro Pro Arg Asn Asn Glu
1025                1030                1035                1040
Val Glu Tyr Cys Asn Gln Leu Leu Asp Ser Ser Lys Asn Leu Asp Ser
                1045                1050                1055
Asp Asp Leu Ser Cys Gln Asp Ala Thr His Thr Gln Ile Glu Glu Asp
            1060                1065                1070
Val Ala Thr Gln Leu Thr Gln Leu Ala Ser Ile Ile Lys Phe Asn Tyr
        1075                1080                1085
Ile Lys Ser Glu Asp Lys Asn Val Glu Ser Thr Pro Thr Ser Leu Val
    1090                1095                1100
```

```
Thr Cys Asn Ala Gln Gln Lys Tyr Asn Gln Glu Lys Gly Thr Ile Gln
1105                1110                1115                1120
Gln Lys Pro Pro Ser Ser Val His Asn Asn His Gly Ser Ser Leu Thr
                1125                1130                1135
Lys Gln Lys Asn Pro Thr Gln Lys Lys Thr Lys Ser Thr Pro Ser Arg
            1140                1145                1150
Glu Arg Arg Lys Lys Lys Pro Thr Val Val Ser Tyr Gln Glu Asn Asp
        1155                1160                1165
Gln Gln Lys Trp Glu Lys Leu Ser Tyr Met Tyr Gly Thr Ile Cys Asp
    1170                1175                1180
Ile Trp Ile Ala Ser Lys Phe Gln Asn Phe Gly Gln Phe Cys Pro His
1185                1190                1195                1200
Asp Phe Pro Thr Val Phe Gly Lys Ile Ser Ser Ser Thr Lys Ile Trp
                1205                1210                1215
Lys Pro Leu Ala Gln Thr Arg Ser Ile Met Gln Pro Lys Thr Val Phe
            1220                1225                1230
Pro Pro Leu Thr Gln Ile Lys Leu Gln Arg Tyr Pro Glu Ser Ala Glu
        1235                1240                1245
Glu Lys Met Lys Val Glu Pro Leu Asp Ser Leu Ser Leu Phe His Leu
    1250                1255                1260
Lys Thr Glu Ser Asn Gly Lys Ala Phe Thr Asp Lys Ala Tyr Asn Ser
1265                1270                1275                1280
Gln Val Gln Leu Thr Val Asn Ala Asn Gln Lys Ala His Pro Leu Thr
                1285                1290                1295
Gln Pro Ser Ser Pro Pro His Gln Cys Ala Asn Val Met Ala Gly Asp
            1300                1305                1310
Asp Gln Ile Arg Phe Gln Gln Val Val Lys Glu Gln Leu Met Asp Gln
        1315                1320                1325
Arg Leu Pro Thr Leu Pro Gly Ile Ser Gln Glu Thr Pro Leu Pro Glu
    1330                1335                1340
Ser Ala Leu Thr Leu Arg Asn Val Asn Val Val Cys Ser Gly Gly Ile
1345                1350                1355                1360
Thr Val Val Ser Thr Lys Ser Glu Glu Glu Val Cys Ser Ser Ser Val
                1365                1370                1375
Gly Thr Ser Glu Phe Ser Thr Val Asp Ser Ala Gln Lys Asn Phe Asn
            1380                1385                1390
Asp Tyr Ala Met Asn Phe Phe Thr Asn Pro Thr Lys Asn Leu Val Ser
        1395                1400                1405
Val Thr Lys Asp Ser Glu Leu Pro Thr Cys Asn Cys Leu Asp Arg Val
    1410                1415                1420
Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro
1425                1430                1435                1440
Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly Glu Lys
                1445                1450                1455
Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys Glu Gly
            1460                1465                1470
Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg Arg Ser
        1475                1480                1485
Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr Gly His
    1490                1495                1500
```

```
His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp Asp Gly
1505                1510                1515                1520
Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn
                1525                1530                1535
Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr Leu Asn
            1540                1545                1550
Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly
        1555                1560                1565
Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys
    1570                1575                1580
Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser
1585                1590                1595                1600
Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala
                1605                1610                1615
Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln
            1620                1625                1630
Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu Gly Ser
        1635                1640                1645
Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe Cys
    1650                1655                1660
Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr Val
1665                1670                1675                1680
Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val Ile Pro
                1685                1690                1695
Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr
            1700                1705                1710
Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys Ser Gly
        1715                1720                1725
Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr
    1730                1735                1740
Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr Glu
1745                1750                1755                1760
Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile Pro Arg
                1765                1770                1775
Val Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys Ala Ser
            1780                1785                1790
Pro Leu Pro Ala Leu Gly Ser Lys Thr Glu Thr Val Gln Pro Glu Val
        1795                1800                1805
Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp Asn Thr
    1810                1815                1820
Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys Glu Ala
1825                1830                1835                1840
Ser Pro Val Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala
                1845                1850                1855
Pro Leu Lys Asn Asp Ala Ala Ala Ser Cys Gly Phe Ser Glu Arg Ser
            1860                1865                1870
Ser Thr Pro His Cys Thr Met Ser Ser Gly Arg Leu Ser Gly Ala Asn
        1875                1880                1885
Ala Ala Ala Val Glu Gly Pro Gly Ile Ser Gln Leu Gly Glu Ala Ala
    1890                1895                1900
```

```
Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Val Asn Ser
1905                1910                1915                1920
Glu Pro Pro Thr Gly Val Thr Glu Pro Leu Thr Ser His Gln Pro Asn
                1925                1930                1935
His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Asp Ser Ser Pro
            1940                1945                1950
Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro Ser Asp
        1955                1960                1965
Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro
    1970                1975                1980
His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala
1985                1990                1995                2000
Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile
                2005                2010                2015
Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu His Pro
            2020                2025                2030
Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys
        2035                2040                2045
Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe
    2050                2055                2060
Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu Gln Lys
2065                2070                2075                2080
Asp Gln Ala Ala Asn Glu Gly Pro Glu Leu Ser Ser Glu Val Asn Glu
                2085                2090                2095
Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His Asp Asn
            2100                2105                2110
Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly Pro Tyr
        2115                2120                2125
Asn His Trp Val
    2130


<210> 5
<211> 1809
<212> PRT
<213> Equus caballus

<220>
<221> VARIANT
<222> 1021, 1036
<223> Xaa = Any Amino Acid

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

```
    50                  55                  60
Pro Pro Val Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala Arg
65                  70                  75                  80
Met Asn Leu Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser Leu
                85                  90                  95
Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser Arg
            100                 105                 110
Arg Leu Ser Gln Pro Pro Val Val Ile Ala Lys Pro Lys Lys Val Pro
        115                 120                 125
Pro Pro Lys Ser Leu Glu Lys Gln His Glu Cys Asp Tyr Lys Val Leu
    130                 135                 140
Thr Asp Met Gly Val Lys His Ser Glu Asn Asp Phe Val Pro Ile Gln
145                 150                 155                 160
Asp Pro Leu Ile Pro Pro Asp Leu Glu Asn Leu Ile Ser Leu Gln Asn
                165                 170                 175
Ala Ser Leu Ile Lys Gly Glu Ser Gln Glu Thr Thr Gln Ser Trp Ser
            180                 185                 190
Gln Arg Val Glu Asp Ser Lys Ile Asn Ile Ser Thr His Ser Gly Pro
        195                 200                 205
Ala Ala Glu Ile Leu Ser Gly Ser Leu Glu Gly Thr Pro Gly Gly Glu
    210                 215                 220
Gly Leu Phe Ser Gln Glu Thr Ser Ser Asp Ile Ser Asp Ser Pro Lys
225                 230                 235                 240
Met Phe Ala Arg Gly Thr Leu Cys Ala Pro Leu Leu Gln Arg Ala Ala
                245                 250                 255
Leu Lys Val Thr Ser Glu Gly Asn Ala Ser Ile Gln Leu Glu Asp Leu
            260                 265                 270
Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Leu Asp Pro
        275                 280                 285
Ile Lys Ser Glu His Asp Phe Cys Pro Thr Ser Ser Phe Asn Lys Val
    290                 295                 300
Ile Pro Glu Leu Asp Leu Lys Asn Cys Leu Ser Ile Gly Gly Ser Ile
305                 310                 315                 320
Tyr Pro Thr Ser Leu Ile Lys Leu Leu Leu Ala Gly Ser Glu Gln Glu
                325                 330                 335
Thr Leu Gly Ala Lys Pro Gly His Gln Glu Val Leu Lys Ala Thr Pro
            340                 345                 350
Asp His Arg Glu Val Pro Asp Thr Thr Pro Val Val Arg Gln Val Phe
        355                 360                 365
Asn Thr Val Pro His Gln Trp Glu Val Pro Gly Ala Asn Leu Val Leu
    370                 375                 380
Gly Glu Ala Leu Gly Glu Thr Pro Asp Pro Pro Glu Ile Pro Gly Ala
385                 390                 395                 400
Val Pro Val Gln Gly Lys Val Phe Gly Ala Ile Leu Asn Gln Gln Ile
                405                 410                 415
Pro Gly Met Gly Gly Gly Thr Ala Ser Asp Pro Pro Ile Phe Leu Pro
            420                 425                 430
Ala Pro Leu Asn Pro Ile Ala Thr Tyr Asn Ala Leu Pro Glu Trp Pro
        435                 440                 445
Glu Pro Gln Gly Thr Val Ser Tyr Gly Leu Glu Val Gln Gly Thr Met
```

```
    450                 455                 460
Gln Ile Leu Pro Leu Gly Ser Gly His Thr Pro Leu Pro Ser Ser Asn
465                 470                 475                 480
Ser Glu Ile Ser Ser Ile Pro Pro Val Met Ala Ile Ser Asn Ile Glu
                485                 490                 495
Asn Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Thr Gln Gly
            500                 505                 510
Phe Thr Leu Ala Pro Glu Arg Gly Leu His Arg Ala Ser Gln Gly Ile
        515                 520                 525
Ala Gln Leu Ser Gln Ala Gly Pro Ser Lys Trp Glu Glu Glu Ser Ser
    530                 535                 540
Gln Ile Ser Lys Thr Ser Met Val Asp Ile Asn Thr Thr Val Val Ser
545                 550                 555                 560
Arg Pro Val Ser Leu Ala Ser Thr Ser Ser Ser Leu Ser Tyr Thr Thr
                565                 570                 575
Leu Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly Val Cys
            580                 585                 590
Glu Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr Cys Lys
        595                 600                 605
Asn Arg Lys Asn Ser His Gln Ile Cys Lys Arg Arg Lys Cys Glu Glu
    610                 615                 620
Leu Lys Lys Lys Pro Ser Val Ile Val Ser Leu Glu Val Ile Lys Glu
625                 630                 635                 640
Asn Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys Ala Asp
                645                 650                 655
Phe Asp Asn Lys Pro Val Asn Gly Pro Lys Ser Glu Ser Met Glu Tyr
            660                 665                 670
Ser Arg Cys Gly His Gly Glu Glu Gln Arg Leu Glu Leu Asn Pro His
        675                 680                 685
Pro Leu Glu Asn Val Thr Lys Asn Glu Glu Ser Met Thr Gly Val Glu
    690                 695                 700
Val Glu Lys Trp Thr Gln Asn Lys Lys Ser His Leu Thr Asp His Val
705                 710                 715                 720
Lys Gly Glu Phe Lys Ala Ile Val Thr Glu Ala Glu Lys Leu Lys Asn
                725                 730                 735
Ser Asp Gly Asp Arg Lys Lys Val Leu Leu Thr Asp Leu Leu Glu Pro
            740                 745                 750
Gln Lys Leu Phe Ala Gln Thr Val Arg Asn Gly Ile Lys Asn Val His
        755                 760                 765
Tyr Leu Ser Thr Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu
    770                 775                 780
Glu Phe Gly Lys Ala Phe Glu Asn Asn Ser Tyr Lys Phe Leu Lys Asp
785                 790                 795                 800
Thr Ala Asn His Asn Asn Ala Met Ser Ser Ile Ala Thr Ser Ala Ser
                805                 810                 815
Cys Asp His Leu Lys Gly Arg Ser Asn Val Leu Val Phe Gln Lys Pro
            820                 825                 830
Gly Phe Asn Cys Lys Ser Phe Ser Asp Ser Ala Asn Phe Asn Leu Asn
        835                 840                 845
Ser His Ala Ser Thr Thr Asn Gly Ser Glu Gln Pro Lys Ser Leu Glu
```

```
    850                 855                 860
Asn Ile Pro Ser Lys Glu Pro Lys Asp Gly Ser Pro Val Gln Pro Ser
865                 870                 875                 880
Leu Leu Ser Leu Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val
                885                 890                 895
Ala Ile Glu Ala Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser
            900                 905                 910
Ser Pro Ser Lys Ser Glu Lys Asp Glu Glu Thr Glu Gln Arg Thr Ala
        915                 920                 925
Ser Leu Leu Asn Ser Cys Lys Ala Ile Leu Tyr Ser Val Arg Lys Asp
    930                 935                 940
Leu Gln Asp Thr Asn Leu Gln Gly Glu Pro Gln Ser Leu His His Cys
945                 950                 955                 960
Pro Ser Leu Glu Lys Gln Ser Ser Cys Asn Thr Val Val Phe Asn Gly
                965                 970                 975
Gln Asn Ile Ile Gln Thr Asn Ala Met Ala Gly Asp Asp Gln Thr Gln
            980                 985                 990
Phe Gln Gln Asp Val Lys Asp Gln Leu Met His Gln Arg Leu Pro Thr
        995                 1000                1005
Leu Pro Gly Ile Ser His Glu Pro Pro Leu Pro Asp Xaa Ala Gln Ile
    1010                1015                1020
Leu Arg Asn Val Asn Val Val Cys Ser Gly Gly Xaa Thr Val Val Ser
1025                1030                1035                1040
Thr Lys Ser Glu Glu Asp Val Cys Ser Ser Ser Val Gly Val Ser Glu
                1045                1050                1055
Phe Ser Pro Val Asp Ser Ala Gln Lys Ser Phe Asn Asp Tyr Ala Met
            1060                1065                1070
Thr Phe Phe Thr Asn Ser Thr Lys Asn Leu Val Ser Thr Thr Lys Asp
        1075                1080                1085
Ser Glu Leu Pro Thr Cys Asn Cys Leu Asp Arg Val Ile Gln Lys Asp
    1090                1095                1100
Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala
1105                1110                1115                1120
Val Arg Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Val
                1125                1130                1135
Arg Ile Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His
            1140                1145                1150
Gly Cys Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu
        1155                1160                1165
Lys Val Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr
    1170                1175                1180
Ala Val Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro
1185                1190                1195                1200
Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr
                1205                1210                1215
Asn Gly His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr
            1220                1225                1230
Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser
        1235                1240                1245
Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg
```

```
    1250                1255                1260
Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His
1265                1270                1275                1280
Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala
                1285                1290                1295
Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu
            1300                1305                1310
Tyr Glu His Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg
        1315                1320                1325
Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His
    1330                1335                1340
Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu
1345                1350                1355                1360
Thr Arg Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln
                1365                1370                1375
Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly
            1380                1385                1390
Ser Arg Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val
        1395                1400                1405
Leu Thr Pro Arg Arg Lys Lys Arg Thr Arg Phe Thr Gln Pro Val Pro
    1410                1415                1420
Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His
1425                1430                1435                1440
Lys Ile Arg Ala Val Glu Lys Lys Phe Ile Pro Arg Ile Lys Arg Lys
                1445                1450                1455
Asn Asn Ser Met Thr Asn Ser Ser Lys Thr Ser Ser Leu Pro Leu Leu
            1460                1465                1470
Gly Ser Lys Thr Glu Thr Leu Gln Pro Glu Ile Lys Ser Glu Thr Glu
        1475                1480                1485
Pro His Phe Ile Val Lys Asp Leu Asp Asn Thr Lys Thr Tyr Ser Leu
    1490                1495                1500
Thr Pro Ser Ile Pro His Pro Val Lys Glu Ala Asn Leu Ser Pro Gly
1505                1510                1515                1520
Phe Pro Trp Ser Cys Asn Thr Ala Ser Ala Thr Thr Val Pro Phe Lys
                1525                1530                1535
Asp Gly Ala Ser Asp Pro Tyr Gly Phe Ser Glu Arg Gly Ser Asn Pro
            1540                1545                1550
His Cys Thr Met Pro Ser Ala Arg His Ser Gly Ala Asn Ala Ala Ala
        1555                1560                1565
Gly Glu Cys Thr Gly Ser Ala Gln Pro Gly Glu Val Val Pro Leu Pro
    1570                1575                1580
Thr Leu Ser Thr Pro Val Thr Asp Ser Leu Val Tyr Ser Glu Pro Pro
1585                1590                1595                1600
Thr Gly Pro Ser Glu Gln Leu Thr Ser Asn Gln Pro Asn Gln Gln Pro
                1605                1610                1615
Pro Phe Ile Thr Ser Pro His Glu Leu Ala Ser Ser Leu Val Glu Glu
            1620                1625                1630
Asp Glu Gln His Ser Glu Val Asp Glu Pro Leu Ser Asp Asp Pro Leu
        1635                1640                1645
Ser Asp Asp Ala Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp
```

```
    1650                1655                1660
Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly
1665                1670                1675                1680
Gly Val Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala
                1685                1690                1695
Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu Asn Pro Asn Arg Asn
            1700                1705                1710
His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn
        1715                1720                1725
Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys
    1730                1735                1740
Glu Ala Lys Asn Lys Lys Ile Lys Ala Ser Glu Gln Lys Asp Gln Ala
1745                1750                1755                1760
Ala Asn Glu Gly Pro Glu Leu Cys Pro Glu Val Asn Glu Leu Asn Gln
                1765                1770                1775
Ile Pro Ser His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr
            1780                1785                1790
Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp
        1795                1800                1805
Val
```

<210> 6
<211> 2137
<212> PRT
<213> Canis lupus familiaris

<400> 6

```
Met Ser Arg Ser Arg His Ala Arg Pro Ser Arg Leu Val Arg Arg Glu
 1               5                  10                  15
Asp Leu Asn Arg Lys Lys Ser Thr Gln Leu Lys Lys Thr Cys Lys Ala
            20                  25                  30
Ala Asn Lys Asn Val Ala Ser Val Lys Thr Val Ser Pro Gly Lys Leu
        35                  40                  45
Lys Gln Leu Ile His Glu Arg Asp Val Lys Lys Lys Ile Glu Pro Lys
    50                  55                  60
Pro Pro Met Pro Val Arg Ser Leu Leu Thr Arg Ala Gly Ala Ala Arg
65                  70                  75                  80
Met Asn Leu Asp Arg Thr Glu Val Leu Phe Gln Asn Pro Glu Ser Leu
                85                  90                  95
Thr Cys Asn Gly Phe Thr Met Ala Leu Arg Ser Thr Ser Leu Ser Arg
            100                 105                 110
Arg Leu Ser Gln Pro Pro Val Ile Ile Ala Lys Pro Lys Lys Val Ser
        115                 120                 125
Pro Pro Lys Asn Leu Glu Lys Gln His Glu Cys Asp Tyr Asn Val Val
    130                 135                 140
Thr Asp Met Gly Val Lys His Ala Glu Asn Asp Ser Val Pro Thr Gln
145                 150                 155                 160
Val Pro Leu Ile Thr Pro Glu Ile Glu Asn Leu Ile Gly Val Gln Asn
```

```
                165                 170                 175
Ala Ser Leu Ile Lys Asp Glu Ser Gln Glu Ile Ala Gln Ser Trp Ser
            180                 185                 190
Gln Arg Val Asp Asp Ser Lys Ile Asn Ile Ser Thr His Ser Gly Pro
        195                 200                 205
Ala Gly Glu Ser Leu Ser Gly Ser Ser Glu Gly Thr Arg Gly Gly Glu
    210                 215                 220
Gly Leu Phe Ser Lys Glu Thr Leu Asn Asp Ile Ser Asp Ser Pro Arg
225                 230                 235                 240
Met Phe Ala Gln Asp Thr Leu Cys Ala Pro Leu Leu Gln Arg Ala Ala
                245                 250                 255
Leu Lys Val Thr Tyr Glu Gly Asn Ser Ser Ile Gln Leu Glu Asp Leu
            260                 265                 270
Gly Ser Arg Val Glu Ser Leu Lys Leu Ser Asp Ser Tyr Pro Asp Pro
        275                 280                 285
Ile Lys Ser Glu Arg Asp Cys Tyr Pro Thr Ser Ser Phe Asn Lys Ile
    290                 295                 300
Ile Pro Glu Leu Asp Leu Arg Asn Cys Leu Ser Ile Asp Gly Ser Ile
305                 310                 315                 320
Tyr Pro Thr Ser Leu Ile Lys Leu Leu Leu Ala Ser Ser Glu Gln Glu
                325                 330                 335
Thr Leu Gly Ala Lys Pro Asp His Arg Glu Ile Leu Lys Ala Thr Ala
            340                 345                 350
Asp Gln Gln Glu Ile Pro Asp Thr Thr Pro Val Ile Gly Gln Ala Phe
        355                 360                 365
Ser Ala Val Pro His Arg Trp Glu Ile Pro Gly Ala Asn Ile Ile His
    370                 375                 380
Gly Glu Ala Leu Asp Glu Thr Leu Asp Pro Pro Glu Met Pro Gly Ala
385                 390                 395                 400
Val Ser Val Gln Gly Glu Val Phe Gly Ala Ile Leu Asn Gln Gln Ile
                405                 410                 415
Leu Gly Met Gly Gly Gly Thr Ala Ser Asp Pro Pro Met Phe Leu Pro
            420                 425                 430
Pro Leu Asn Pro Ile Ala Thr Tyr Asn Val Pro Pro Glu Trp Pro Glu
        435                 440                 445
Pro Gln Ser Thr Val Ser Tyr Gly Leu Glu Val Gln Gly Ala Val Gln
    450                 455                 460
Ile Leu Pro Leu Gly Ser Gly His Thr Pro Gln Pro Pro Ser Asn Ser
465                 470                 475                 480
Glu Ile Ser Ser Val Pro Pro Ile Met Thr Ile Ser Asn Ile Glu Asn
                485                 490                 495
Glu Lys Gln Val His Ile Ser Phe Leu Pro Ala Asn Ile Gln Gly Ile
            500                 505                 510
Thr Leu Ala Pro Glu Arg Gly Leu Leu Leu His Ala Ser Gln Gly Ile
        515                 520                 525
Thr Gln Leu Ser Gln Ala Gly Pro Ser Thr Leu Glu Gly Glu Ser Ser
    530                 535                 540
Gln Val Ser Met Thr Ser Val Val Asp Ile Asn Thr Lys Val Val Ser
545                 550                 555                 560
Arg Pro Val Ser Leu Ala Ser Thr Pro Ser Ser Ser Phe Thr Thr Leu
```

```
                565                 570                 575
Leu Pro Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly Val Cys Glu
            580                 585                 590
Pro Cys Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr Cys Lys Asn
        595                 600                 605
Arg Lys Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys Glu Glu Leu
    610                 615                 620
Lys Lys Lys Pro Ser Val Ile Val Pro Leu Glu Val Ile Lys Glu Asn
625                 630                 635                 640
Lys Arg Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys Ala Asp Phe
                645                 650                 655
Asp Asn Lys Ser Val Asn Gly Leu Lys Ser Glu Ser Met Glu Tyr Arg
            660                 665                 670
Arg Ser Tyr Gly Gly Glu Gln Arg Leu Glu Leu Asn Pro Pro Pro Leu
        675                 680                 685
Glu Asn Val Thr Lys Asn Glu Glu Ser Met Thr Gly Ile Glu Val Glu
    690                 695                 700
Lys Trp Thr Gln Asn Lys Lys Ser His Leu Thr Asp His Val Lys Gly
705                 710                 715                 720
Glu Phe Lys Ala Ile Val Thr Glu Ala Glu Lys Phe Lys Asn Ser Glu
                725                 730                 735
Asp Asp Lys Lys Lys Val Leu Leu Thr Asp Leu Ile Glu Pro Gln Lys
            740                 745                 750
Leu Phe Ala Gln Thr Ile Arg Asn Gly Ile Lys Asn Val His Tyr Leu
        755                 760                 765
Pro Thr Glu Thr Asn Val Ser Phe Lys Lys Phe Asn Ile Glu Glu Phe
    770                 775                 780
Gly Lys Ala Phe Glu Asn Asn Ser Tyr Lys Phe Leu Lys Asp Thr Ala
785                 790                 795                 800
Asn His Asn Ala Met Ser Ser Ile Ala Thr Ser Ala Ser Cys Asp His
                805                 810                 815
Leu Lys Gly Arg Asn Asn Val Ser Val Phe Gln Lys Pro Gly Phe Asn
            820                 825                 830
Cys Lys Ser Leu Pro Asp Pro Thr Thr Phe Asn Leu Asn Ser His Thr
        835                 840                 845
Ser Thr His Asn Glu Ser Asp Gln Pro Lys Ser Leu Asp Asn Ile Pro
    850                 855                 860
Ser Lys Asp Pro Lys Asp Gly Ser Pro Val Gln Pro Ser Leu Leu Ser
865                 870                 875                 880
Leu Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu
                885                 890                 895
Ala Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser
            900                 905                 910
Lys Ser Glu Lys Asp Glu Glu Thr Glu His Arg Thr Glu Ser Leu Leu
        915                 920                 925
Asn Ser Cys Lys Ala Ile Leu Tyr Ser Val Arg Lys Asp Leu Gln Asp
    930                 935                 940
Pro Asn Leu Gln Gly Glu Pro Glu Ser Leu His His Tyr Pro Ser Leu
945                 950                 955                 960
Glu Lys Gln Thr Ser Cys Asn Thr Val Val Phe Asn Gly Gln Asn Ile
```

```
                965                 970                 975
Ser Lys Ser His His Asn Ser Ala Ala Asn Gln Ala Pro Thr Lys Ser
            980                 985                 990
Gln Glu Cys Ser Lys Ala Thr Asn Ser Ile Thr Leu Phe Ile Pro Asn
        995                 1000                1005
Ser Asn Ser Ser Lys Ile Asp Thr Asn Lys Asn Val Ala Gln Ser Arg
    1010                1015                1020
Ile Asn Leu Glu Ser Ser Lys Asn Leu His Pro Leu Pro Pro Ala Gly
1025                1030                1035                1040
Asp Lys Leu Gly Tyr Cys Asn Gln Ser Leu Ala Ser Ser Lys Lys Ile
                1045                1050                1055
Asp Leu Lys Asp Asp Pro Ser Gly Leu Asn Thr Ile His Ser Lys Ile
            1060                1065                1070
Glu Glu Asp Val Ala Thr Gln Leu Thr Gln Leu Ala Ser Ile Ile Lys
        1075                1080                1085
Phe Asn Tyr Ile Lys Gln Glu Asp Lys Lys Val Glu Ser Thr Pro Thr
    1090                1095                1100
Ser Leu Val Ala Tyr Asn Val Gln Gln Lys Cys Ser Gln Glu Lys Ala
1105                1110                1115                1120
Thr Ile Gln Gln Lys Pro Pro Ser Ser Val Gln Asn Asn His Ser Ser
                1125                1130                1135
Leu Leu Thr Lys Gln Lys Asn Thr Thr Gln Lys Lys Thr Arg Ala Thr
            1140                1145                1150
Pro Ser Arg Asp Arg Arg Lys Lys Lys Thr Val Val Ile Ser Cys Gln
        1155                1160                1165
Glu Asn Asp Gln Lys Asn Gln Glu Gln Leu Ser Tyr Glu Tyr Ser Lys
    1170                1175                1180
Leu His Asp Ile Trp Ile Ala Ser Lys Phe Gln Arg Phe Gly Gln Phe
1185                1190                1195                1200
Gly Pro His Asp Phe Pro Ile Leu Leu Gly Lys Ile Pro Pro Leu Thr
                1205                1210                1215
Lys Val Trp Lys Pro Leu Thr Gln Thr Ser Ser Val Leu Glu His Lys
            1220                1225                1230
Lys Leu Phe Pro Pro Leu Thr Gln Ile Lys Phe Glu Arg Tyr Tyr Pro
        1235                1240                1245
Glu Leu Ala Gln Glu Arg Asn Met Lys Val Glu Pro Leu Asp Ser Leu
    1250                1255                1260
Pro Ile Cys Gln Leu Lys Thr Glu Ser Asn Gly Gln Ala Phe Thr Glu
1265                1270                1275                1280
Lys Val Tyr Ser Ser Gln Val Gln Pro Thr Gly Asn Val Asn Gln Lys
                1285                1290                1295
Ala His Pro Leu Leu Gln Pro Ser Ser Pro Thr Asn Gln Cys Ala Asn
            1300                1305                1310
Val Met Thr Gly Asp Asp Gln Thr Gln Phe Gln Arg Asp Val Gln Asp
        1315                1320                1325
Gln Leu Met His Gln Arg Leu Pro Thr Leu Pro Gly Ile Ser His Glu
    1330                1335                1340
Thr Pro Leu Pro Asp Pro Ala His Ile Leu Arg Asn Val Asn Val Val
1345                1350                1355                1360
Cys Ser Gly Gly Ile Thr Val Val Ser Thr Lys Asn Glu Glu Asp Val
```

```
                1365                1370                1375
Cys Ser Ser Ser Val Gly Ala Ser Glu Phe Ser Pro Val Asp Ser Ala
            1380                1385                1390
Gln Lys Ser Phe Asn Asp Tyr Ala Met Asn Phe Phe Thr Asn Pro Thr
        1395                1400                1405
Lys Asn Leu Val Ser Thr Thr Lys Asp Ser Asp Leu Pro Thr Cys Asn
    1410                1415                1420
Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His
1425                1430                1435                1440
Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn
                1445                1450                1455
Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr
            1460                1465                1470
Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp
        1475                1480                1485
Val Leu Arg Arg Gly Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg
    1490                1495                1500
Gln Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile
1505                1510                1515                1520
Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr
                1525                1530                1535
Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg
            1540                1545                1550
Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp
        1555                1560                1565
Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met
    1570                1575                1580
Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe
1585                1590                1595                1600
Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn
                1605                1610                1615
Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala
            1620                1625                1630
Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu His Val Ala Arg Glu
        1635                1640                1645
Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala
    1650                1655                1660
Cys Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn
1665                1670                1675                1680
Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser
                1685                1690                1695
Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr
            1700                1705                1710
Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg Glu Gly Met Glu Ala
        1715                1720                1725
Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Thr Pro Arg Arg Lys Lys
    1730                1735                1740
Arg Lys Arg Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala
1745                1750                1755                1760
Ala Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys
```

```
                1765                1770                1775
Lys Phe Val Pro Arg Val Lys Arg Lys Asn Asn Ser Thr Ser Asn Gly
            1780                1785                1790
Lys Thr Ser Ser Leu Pro Leu Leu Gly Asn Lys Thr Glu Ala Leu Gln
        1795                1800                1805
Leu Glu Ile Lys Ser Glu Thr Glu Pro His Phe Ile Phe Lys Gly Ser
    1810                1815                1820
Asp Asn Thr Lys Thr Tyr Ser Leu Thr Pro Ser Ile Pro His Thr Leu
1825                1830                1835                1840
Lys Glu Ala Asn Ile Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Thr
                1845                1850                1855
Ser Ala Thr Thr Ala Pro Phe Lys Asn Asp Val Ser Val Ser Tyr Gly
            1860                1865                1870
Phe Ser Glu Arg Ser Ser Asn Pro His Cys Thr Met Pro Ser Ala Arg
        1875                1880                1885
His Ser Gly Ala Asn Ala Ala Ala Gly Glu Cys Thr Gly Ile Ala Gln
    1890                1895                1900
Pro Gly Glu Val Val Ala Leu Ser Thr Leu Ser Thr Pro Val Thr Glu
1905                1910                1915                1920
Ser Leu Val Tyr Ser Glu Pro Ser Thr Gly Pro Ser Glu Gln Leu Pro
                1925                1930                1935
Ser Asn His Pro Asn Gln Gln Ala Pro Phe Thr Thr Ser Pro His Asp
            1940                1945                1950
Leu Thr Ser Ser Leu Val Glu Glu Asp Glu Gln His Ser Asp Ala Asp
        1955                1960                1965
Glu Pro Leu Ser Asp Asp Pro Leu Ser Asp Asp Pro Leu Ser Pro Thr
    1970                1975                1980
Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His
1985                1990                1995                2000
Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His
                2005                2010                2015
Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr
            2020                2025                2030
Pro Val Glu His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val
        2035                2040                2045
Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu
    2050                2055                2060
Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Ile Lys
2065                2070                2075                2080
Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Val Pro Asp Leu Ser
                2085                2090                2095
Pro Glu Val Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr
            2100                2105                2110
Leu Thr His Asp Asn Ile Val Thr Val Ser Pro Tyr Ala Leu Thr His
        2115                2120                2125
Val Ala Gly Pro Tyr Asn His Trp Val
    2130                2135
```

<210> 7

<211> 1749
<212> PRT
<213> Ovis aries

<400> 7
Met Gly Ser Gly Thr Ala Ser Asp Pro Pro Ile Phe Leu Pro Ala Pro
 1   5   10   15
His Asn Pro Val Ala Thr Cys Asn Ala Leu Pro Ala Trp Pro Glu Pro
            20   25   30
Gln Gly Thr Val Ser Ser Gly Leu Glu Val Pro Asp Thr Met Gln Ile
        35   40   45
Leu Pro Ser Gly Ser Gly His Thr Pro Gln Pro Ser Ser Asn Ser Glu
    50   55   60
Ile Ile Leu Val Pro Pro Val Ile Pro Met Asn Asn Ile Glu Asn Glu
65   70   75   80
Lys Lys Val His Ile Ser Leu Leu Pro Ala His Thr Gln Gly Phe Thr
                85   90   95
Leu Ala Pro Glu Arg Gly Leu Gln Pro Ala Pro Gln Gly Ile Ala Gln
            100   105   110
Leu Ser Leu Val Ser Pro Ser Thr Leu Glu Gly Arg Ser Ser Gln Val
        115   120   125
Ser Ala Thr Ser Met Val Asp Ile Asn Thr Thr Val Val Ser Arg Pro
    130   135   140
Val Pro Leu Ala Ser Thr Ser Ser Pro Ser Tyr Thr Thr Leu Leu Pro
145   150   155   160
Thr Leu Glu Lys Lys Lys Arg Lys Arg Cys Gly Val Cys Glu Pro Cys
                165   170   175
Gln Gln Lys Thr Asn Cys Gly Glu Cys Thr Tyr Cys Lys Asn Arg Lys
            180   185   190
Asn Ser His Gln Ile Cys Lys Lys Arg Lys Cys Glu Glu Leu Lys Lys
        195   200   205
Lys Pro Ser Val Ile Val Ser Leu Glu Val Val Lys Glu Asn Lys Arg
    210   215   220
Pro Gln Arg Glu Lys Lys Pro Lys Val Leu Lys Ala Asp Phe Asp Asn
225   230   235   240
Lys Leu Val Asn Gly Pro Lys Ser Glu Ser Met Glu Tyr Ser Ser Cys
                245   250   255
Ala His Glu Glu Glu Gln Arg Leu Glu Leu Asn Ser Cys Pro Leu Glu
            260   265   270
Asn Val Thr Lys Asn Glu Glu Ser Met Thr Gly Ile Glu Val Glu Asn
        275   280   285
Trp Thr Gln Asn Lys Lys Ser His Leu Thr Asp His Val Lys Gly Glu
    290   295   300
Phe Ser Thr Val Lys Thr Glu Val Glu Asn Leu Lys Asn Ser Glu Asp
305   310   315   320
Asp Arg Lys Lys Ile Leu Leu Thr Asp Leu Leu Glu Pro Gln Lys Leu
                325   330   335
Phe Ala Gln Thr Val Arg Asn Gly Ile Lys Asn Val His Tyr Leu Pro
            340   345   350
Thr Glu Thr Asn Leu Ser Phe Lys Lys Ile Asn Ile Glu Glu Leu Gly

```
        355                 360                 365
Lys Ala Phe Glu Ser Asn Pro Tyr Lys Phe Leu Lys Asp Thr Ala Asn
    370                 375                 380
His Asn Asn Val Met Ser Thr Ile Ala Thr Ser Gly Ser Cys Asp His
385                 390                 395                 400
Leu Lys Gly Lys Ser Asn Val Leu Val Ile Gln Lys Pro Gly Phe Asn
                405                 410                 415
Cys Lys Ser Phe Pro Asp Pro Val Asn Cys Asn Ser Asn Ser His Thr
            420                 425                 430
Ser Ile His Asn Glu Ser Asp Gln Pro Lys Ser Leu Glu Ile Ile Ala
        435                 440                 445
Asn Arg Asp Leu Lys Glu Gly Ser Thr Leu Gln Pro Ser Leu Leu Ser
    450                 455                 460
Leu Met Lys Asp Arg Arg Leu Thr Leu Glu Gln Val Val Ala Ile Glu
465                 470                 475                 480
Ala Leu Thr Gln Leu Ser Glu Ala Pro Ser Glu Asn Ser Ser Pro Ser
                485                 490                 495
Lys Ser Glu Lys Asp Glu Glu Thr Glu Gln Arg Thr Ala Ser Leu Leu
            500                 505                 510
Asn Ser Cys Lys Ala Ile Leu Tyr Ser Val Arg Lys Asp Leu Gln Asp
        515                 520                 525
Pro Asn Leu Lys Gly Glu Pro Gln Ser Leu His His Cys Pro Ser Leu
    530                 535                 540
Glu Lys Gln Ser Ser Cys Asn Ala Val Val Phe Asn Gly Gln Asn Ile
545                 550                 555                 560
Ile Ser Lys Ser His Asn Ser Ser Pro Ser Asp Gln Ala Ser Thr Lys
                565                 570                 575
Ala Gln Glu Ser Ser Thr Val Thr Asn Ser Ile Ser Leu Leu Ile Pro
            580                 585                 590
Asn Ser Asn Ser Ser Lys Thr Asp Thr Asn Lys Asn Ile Ala Gln Gly
        595                 600                 605
Arg Ile Thr Leu Asp Ser Ser Arg Ser Leu Gln Pro Leu Thr Thr Ile
    610                 615                 620
Thr Ser Lys Ser Glu Tyr Cys Asn Gln Ser Leu Asp Asn Ser Ile Lys
625                 630                 635                 640
Leu Asp Ser Lys Asp Asp Ser Ser Cys Gln Asp Ser Val His Ser Lys
                645                 650                 655
Ile Glu Glu Asp Val Ala Ala Gln Leu Thr Gln Leu Ala Ser Met Ile
            660                 665                 670
Lys Phe Asn Tyr Val Lys Pro Glu Asp Lys Lys Val Glu Ser Thr Pro
        675                 680                 685
Ile Ser Leu Val Ala Tyr Asn Val Gln Gln Lys Tyr Asn Gln Glu Met
    690                 695                 700
Gly Thr Pro Pro Gln Lys Pro Pro Ser Asn Val Gln Asn Asn Gln Gly
705                 710                 715                 720
Ser Ser Val Thr Lys Gln Lys Asn Thr Ile Gln Lys Lys Thr Lys Ala
                725                 730                 735
Thr Pro Ser Arg Asp Arg Arg Lys Lys Lys His Met Val Ile Ser Cys
            740                 745                 750
Gln Glu Asn Asp Gln Lys Lys Gln Glu Gln Leu Ser Tyr Glu Tyr Ser
```

```
        755                 760                 765
Lys Leu His Asp Ile Trp Ile Ala Ser Lys Phe Gln Arg Phe Gly Gln
    770                 775                 780
Phe Gly Pro His Asp Phe Pro Ile Leu Leu Gly Lys Ile Pro Pro Leu
785                 790                 795                 800
Thr Lys Val Trp Lys Pro Leu Thr Gln Thr Ser Ser Ala Leu Glu His
                805                 810                 815
Lys Lys Leu Phe Pro Pro Leu Ala Gln Ile Lys Phe Glu Arg Tyr Tyr
            820                 825                 830
Pro Glu Leu Ala Gln Glu Lys Met Lys Val Glu Pro Leu Asp Ser Ile
        835                 840                 845
Pro Ile Ile Gln Leu Lys Thr Glu Ser Asn Gly Gln Ala Phe Thr Glu
    850                 855                 860
Asn Ala Tyr Thr Gln Val Gln Pro Thr Val Asn Val Asn Gln Lys Ala
865                 870                 875                 880
His Pro Leu Leu Gln Pro Ala Ser Pro Thr Asn Gln Cys Ala Asn Val
                885                 890                 895
Leu Asp Gly Ser Asp Gln Arg Gln Phe Gln Glu Asp Val Lys Asp Gln
            900                 905                 910
Leu Met His Gln Arg Leu Pro Thr Ser Pro Gly Ile Ser His Glu Thr
        915                 920                 925
Pro Leu Pro Asp Pro Ala Gln Ile Leu Arg Asn Leu Asn Val Val Cys
    930                 935                 940
Ser Gly Gly Ile Thr Val Val Ser Thr Lys Asn Glu Glu Asp Val Cys
945                 950                 955                 960
Ser Ser Ser Val Gly Thr Ser Glu Phe Pro Pro Ile Asn Ser Ala Gln
                965                 970                 975
Lys Thr Phe Asn Asp Tyr Ala Met Asn Phe Phe Thr Asn Ser Thr Lys
            980                 985                 990
Thr Leu Val Ser Thr Thr Lys Asp Ser Glu Leu Pro Thr Cys Asn Cys
        995                 1000                1005
Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu
    1010                1015                1020
Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg
1025                1030                1035                1040
Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr
                1045                1050                1055
Gly Lys Glu Gly Lys Ser Ser Asn Gly Cys Pro Val Ala Lys Trp Val
            1060                1065                1070
Leu Arg Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln
        1075                1080                1085
Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met
    1090                1095                1100
Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Lys Leu Tyr Ser Gln
1105                1110                1115                1120
Leu Thr Glu Ser Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg
                1125                1130                1135
Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro
            1140                1145                1150
Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr
```

```
        1155                1160                1165
Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg
    1170                1175                1180
Ile Asp Pro Ser Ser Pro Leu His His Tyr Tyr Glu Arg Ile Thr Lys
1185                1190                1195                1200
Gly Arg Asn Pro Glu Arg Arg Tyr Met Lys Pro Glu Pro Ile Cys Pro
                1205                1210                1215
Glu His Glu Ala Met Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu
            1220                1225                1230
Ala Thr Glu Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Ala Ala Tyr
        1235                1240                1245
Gln Asn Gln Val Ala Leu Glu His Ile Ala Arg Glu Cys Arg Leu Gly
    1250                1255                1260
Lys Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe
1265                1270                1275                1280
Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr
                1285                1290                1295
Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Phe Gly Val Ile
            1300                1305                1310
Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp
        1315                1320                1325
Thr Asp Glu Phe Gly Ser Arg Glu Gly Met Glu Ala Lys Ile Lys Ser
    1330                1335                1340
Gly Ala Ile Met Val Leu Ala Pro Arg Gln Lys Lys Arg Met Arg Phe
1345                1350                1355                1360
Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr
                1365                1370                1375
Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Phe Ile Pro
            1380                1385                1390
Arg Ile Lys Arg Lys Asn Asn Ser Met Thr Asn Asn Ser Lys Ala Ser
        1395                1400                1405
Ser Leu Pro Leu Leu Gly Asn Lys Thr Glu Thr Val Gln Pro Glu Ile
    1410                1415                1420
Lys Ser Glu Thr Glu Pro His Leu Ile Phe Lys Gly Ser Asp Asn Thr
1425                1430                1435                1440
Lys Ser Tyr Ser Pro Ala Pro Phe Ile Pro His Pro Val Lys Glu Glu
                1445                1450                1455
Asn Leu Ala Pro Ala Phe Ser Trp Ser Ser Lys Thr Ala Leu Val Thr
            1460                1465                1470
Thr Ala Pro Phe Lys Asn Asp Ala Ser Leu Ser Tyr Gly Phe Ser Glu
        1475                1480                1485
Arg Gly Ser Asn Pro His Cys Ile Met Pro Ser Ala Arg His Ser Gly
    1490                1495                1500
Ala Asn Val Ala Ala Gly Glu Cys Ser Glu Ile Ala Gln Pro Gly Glu
1505                1510                1515                1520
Met Val Pro Leu Pro Thr Leu Ser Thr Pro Met Thr Asn Ser Leu Gly
                1525                1530                1535
Tyr Ser Glu Pro Pro Ile Gly Pro Ser Glu Gln Leu Thr Ser Asn Gln
            1540                1545                1550
Pro Asn Gln Gln Pro Pro Phe Ile Thr Ser Pro His Glu Leu Ala Ser
```

```
        1555                1560                1565
Ser Leu Val Glu Glu Asp Glu Gln Pro Ser Glu Ala Asp Glu Pro Pro
    1570                1575                1580
Ser Asp Asp Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
1585                1590                1595                1600
Leu Pro His Ile Val Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
                1605                1610                1615
Asp Ala Asn Val Gly Gly Val Ala Ile Ala Pro Ser His Gly Ser Val
            1620                1625                1630
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Asp
        1635                1640                1645
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
    1650                1655                1660
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
1665                1670                1675                1680
Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Thr Lys Ala Ser Glu
                1685                1690                1695
Gln Lys Asp Gln Ala Ala Asn Glu Gly Ile Glu Leu Thr Glu Val Asn
            1700                1705                1710
Glu Phe Ser Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His Asp
        1715                1720                1725
Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly Pro
    1730                1735                1740
Tyr Asn His Trp Val
1745


<210> 8
<211> 718
<212> PRT
<213> Homo sapiens

<400> 8
Leu Pro Thr Cys Ser Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
```

```
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser Ser Leu Pro Thr Leu Gly
    370                 375                 380
Ser Asn Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Ile Asn Ser Glu Pro Ser Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp Glu Gln
```

```
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
545                 550                 555                 560
Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 9
<211> 718
<212> PRT
<213> Pan paniscus

<400> 9
Leu Pro Thr Cys Ser Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
```

```
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Cys Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Ala Ser Ser Leu Pro Thr Leu Gly
    370                 375                 380
Ser Lys Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Ile Asn Ser Glu Pro Ser Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
```

```
545                 550                 555                 560
Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 10
<211> 718
<212> PRT
<213> Gorilla gorilla gorilla

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

```
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Cys Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Ala Ser Ser Leu Pro Thr Leu Gly
    370                 375                 380
Ser Lys Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Val Asn Ser Glu Pro Ser Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
545                 550                 555                 560
Leu Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
```

```
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 11
<211> 718
<212> PRT
<213> Mandrillus leucophaeus

<400> 11
Leu Pro Thr Cys Asn Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Glu Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
```

```
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Val Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Ala Ser Pro Leu Pro Ala Leu Gly
    370                 375                 380
Ser Lys Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Val Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Ala Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Ser Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Val Glu Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Ala Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Val Asn Ser Glu Pro Pro Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Ser His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Asp Ser Ser Pro Met Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
545                 550                 555                 560
Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
```

```
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Leu Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 12
<211> 719
<212> PRT
<213> Equus caballus

<400> 12
Leu Pro Thr Cys Asn Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Val Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
```

```
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
His Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Thr
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Thr Arg Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Phe Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Met Thr Asn Ser Ser Lys Thr Ser Ser Leu Pro Leu Leu Gly Ser
    370                 375                 380
Lys Thr Glu Thr Leu Gln Pro Glu Ile Lys Ser Glu Thr Glu Pro His
385                 390                 395                 400
Phe Ile Val Lys Asp Leu Asp Asn Thr Lys Thr Tyr Ser Leu Thr Pro
                405                 410                 415
Ser Ile Pro His Pro Val Lys Glu Ala Asn Leu Ser Pro Gly Phe Pro
            420                 425                 430
Trp Ser Cys Asn Thr Ala Ser Ala Thr Thr Val Pro Phe Lys Asp Gly
        435                 440                 445
Ala Ser Asp Pro Tyr Gly Phe Ser Glu Arg Gly Ser Asn Pro His Cys
    450                 455                 460
Thr Met Pro Ser Ala Arg His Ser Gly Ala Asn Ala Ala Ala Gly Glu
465                 470                 475                 480
Cys Thr Gly Ser Ala Gln Pro Gly Glu Val Val Pro Leu Pro Thr Leu
                485                 490                 495
Ser Thr Pro Val Thr Asp Ser Leu Val Tyr Ser Glu Pro Pro Thr Gly
            500                 505                 510
Pro Ser Glu Gln Leu Thr Ser Asn Gln Pro Asn Gln Gln Pro Pro Phe
        515                 520                 525
Ile Thr Ser Pro His Glu Leu Ala Ser Ser Leu Val Glu Glu Asp Glu
    530                 535                 540
Gln His Ser Glu Val Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Asp
545                 550                 555                 560
Asp Ala Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr
                565                 570                 575
Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val
            580                 585                 590
Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg
```

```
        595                 600                 605
Glu Leu His Ala Thr Thr Pro Val Glu Asn Pro Asn Arg Asn His Pro
    610                 615                 620
Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro
625                 630                 635                 640
Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala
                645                 650                 655
Lys Asn Lys Lys Ile Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn
            660                 665                 670
Glu Gly Pro Glu Leu Cys Pro Glu Val Asn Glu Leu Asn Gln Ile Pro
        675                 680                 685
Ser His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser
    690                 695                 700
Pro Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 13
<211> 718
<212> PRT
<213> Canis lupus familiaris

<400> 13
Leu Pro Thr Cys Asn Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Gly Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
```

```
    210                 215                 220
His Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Thr
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Lys Arg Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Phe Val Pro Arg Val Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Ser Asn Gly Lys Thr Ser Ser Leu Pro Leu Leu Gly Asn Lys
    370                 375                 380
Thr Glu Ala Leu Gln Leu Glu Ile Lys Ser Glu Thr Glu Pro His Phe
385                 390                 395                 400
Ile Phe Lys Gly Ser Asp Asn Thr Lys Thr Tyr Ser Leu Thr Pro Ser
                405                 410                 415
Ile Pro His Thr Leu Lys Glu Ala Asn Ile Ser Pro Gly Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Thr Ser Ala Thr Thr Ala Pro Phe Lys Asn Asp Val
        435                 440                 445
Ser Val Ser Tyr Gly Phe Ser Glu Arg Ser Ser Asn Pro His Cys Thr
    450                 455                 460
Met Pro Ser Ala Arg His Ser Gly Ala Asn Ala Ala Ala Gly Glu Cys
465                 470                 475                 480
Thr Gly Ile Ala Gln Pro Gly Glu Val Val Ala Leu Ser Thr Leu Ser
                485                 490                 495
Thr Pro Val Thr Glu Ser Leu Val Tyr Ser Glu Pro Ser Thr Gly Pro
            500                 505                 510
Ser Glu Gln Leu Pro Ser Asn His Pro Asn Gln Gln Ala Pro Phe Thr
        515                 520                 525
Thr Ser Pro His Asp Leu Thr Ser Ser Leu Val Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Asp Ala Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Asp Asp
545                 550                 555                 560
Pro Leu Ser Pro Thr Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
```

```
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Ile Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Val Pro Asp Leu Ser Pro Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Ile Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 14
<211> 747
<212> PRT
<213> Ovis aries

<400> 14
Leu Pro Thr Cys Asn Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser Asn Gly Cys
    50                  55                  60
Pro Val Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Lys Leu Tyr Ser Gln Leu Thr Glu Ser Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His His Tyr
            180                 185                 190
Tyr Glu Arg Ile Thr Lys Gly Arg Asn Pro Glu Arg Arg Tyr Met Lys
        195                 200                 205
Pro Glu Pro Ile Cys Pro Glu His Glu Ala Met Glu Lys Asn Leu Glu
    210                 215                 220
Asp Asn Leu Gln Ser Leu Ala Thr Glu Leu Ala Pro Ile Tyr Lys Gln
```

```
225                 230                 235                 240
Tyr Ala Pro Ala Ala Tyr Gln Asn Gln Val Ala Leu Glu His Ile Ala
                245                 250                 255
Arg Glu Cys Arg Leu Gly Lys Lys Glu Gly Arg Pro Phe Ser Gly Val
            260                 265                 270
Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn
        275                 280                 285
Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn
    290                 295                 300
Arg Ser Phe Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro
305                 310                 315                 320
Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Arg Glu Gly Met
                325                 330                 335
Glu Ala Lys Ile Lys Ser Gly Ala Ile Met Val Leu Ala Pro Arg Gln
            340                 345                 350
Lys Lys Arg Met Arg Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys
        355                 360                 365
Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val
    370                 375                 380
Glu Lys Lys Phe Ile Pro Arg Ile Lys Arg Lys Asn Asn Ser Met Thr
385                 390                 395                 400
Asn Asn Ser Lys Ala Ser Ser Leu Pro Leu Leu Gly Asn Lys Thr Glu
                405                 410                 415
Thr Val Gln Pro Glu Ile Lys Ser Glu Thr Glu Pro His Leu Ile Phe
            420                 425                 430
Lys Gly Ser Asp Asn Thr Lys Ser Tyr Ser Pro Ala Pro Phe Ile Pro
        435                 440                 445
His Pro Val Lys Glu Glu Asn Leu Ala Pro Ala Phe Ser Trp Ser Ser
    450                 455                 460
Lys Thr Ala Leu Val Thr Thr Ala Pro Phe Lys Asn Asp Ala Ser Leu
465                 470                 475                 480
Ser Tyr Gly Phe Ser Glu Arg Gly Ser Asn Pro His Cys Ile Met Pro
                485                 490                 495
Ser Ala Arg His Ser Gly Ala Asn Val Ala Ala Gly Glu Cys Ser Glu
            500                 505                 510
Ile Ala Gln Pro Gly Glu Met Val Pro Leu Pro Thr Leu Ser Thr Pro
        515                 520                 525
Met Thr Asn Ser Leu Gly Tyr Ser Glu Pro Pro Ile Gly Pro Ser Glu
    530                 535                 540
Gln Leu Thr Ser Asn Gln Pro Asn Gln Gln Pro Pro Phe Ile Thr Ser
545                 550                 555                 560
Pro His Glu Leu Ala Ser Ser Leu Val Glu Glu Asp Glu Gln Pro Ser
                565                 570                 575
Glu Ala Asp Glu Pro Pro Ser Asp Asp Pro Leu Ser Asp Asp Pro Leu
            580                 585                 590
Ser Pro Ala Glu Glu Lys Leu Pro His Ile Val Glu Tyr Trp Ser Asp
        595                 600                 605
Ser Glu His Ile Phe Leu Asp Ala Asn Val Gly Gly Val Ala Ile Ala
    610                 615                 620
Pro Ser His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His
```

625 630 635 640
Ala Thr Thr Pro Val Asp His Pro Asn Arg Asn His Pro Thr Arg Leu
645 650 655
Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly
660 665 670
Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys
675 680 685
Lys Thr Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Gly Ile
690 695 700
Glu Leu Thr Glu Val Asn Glu Phe Ser Gln Ile Pro Ser His Lys Ala
705 710 715 720
Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu
725 730 735
Thr His Val Ala Gly Pro Tyr Asn His Trp Val
740 745

<210> 15
<211> 1390
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

```
Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr Asn Gln Leu Phe Glu
        195                 200                 205
Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala Lys Ala Ile Leu Ser
    210                 215                 220
Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn Leu Ile Ala Gln Leu
225                 230                 235                 240
Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn Leu Ile Ala Leu Ser
                245                 250                 255
Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe Asp Leu Ala Glu Asp
            260                 265                 270
Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp Asp Asp Leu Asp Asn
        275                 280                 285
Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp Leu Phe Leu Ala Ala
    290                 295                 300
Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp Ile Leu Arg Val Asn
305                 310                 315                 320
Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser Met Ile Lys Arg Tyr
                325                 330                 335
Asp Glu His His Gln Asp Leu Thr Leu Leu Lys Ala Leu Val Arg Gln
            340                 345                 350
Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe Asp Gln Ser Lys Asn
        355                 360                 365
Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser Gln Glu Glu Phe Tyr
    370                 375                 380
Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp Gly Thr Glu Glu Leu
385                 390                 395                 400
Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg Lys Gln Arg Thr Phe
                405                 410                 415
Asp Asn Gly Ser Ile Pro His Gln Ile His Leu Gly Glu Leu His Ala
            420                 425                 430
Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe Leu Lys Asp Asn Arg
        435                 440                 445
Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile Pro Tyr Tyr Val Gly
    450                 455                 460
Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp Met Thr Arg Lys Ser
465                 470                 475                 480
Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu Val Val Asp Lys Gly
                485                 490                 495
Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr Asn Phe Asp Lys Asn
            500                 505                 510
Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser Leu Leu Tyr Glu Tyr
        515                 520                 525
Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys Tyr Val Thr Glu Gly
    530                 535                 540
Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln Lys Lys Ala Ile Val
545                 550                 555                 560
Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr Val Lys Gln Leu Lys
                565                 570                 575
Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp Ser Val Glu Ile Ser
            580                 585                 590
```

```
Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly Thr Tyr His Asp Leu
        595                 600                 605
Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp Asn Glu Glu Asn Glu
    610                 615                 620
Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr Leu Phe Glu Asp Arg
625                 630                 635                 640
Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala His Leu Phe Asp Asp
                645                 650                 655
Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr Thr Gly Trp Gly Arg
            660                 665                 670
Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp Lys Gln Ser Gly Lys
        675                 680                 685
Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe Ala Asn Arg Asn Phe
    690                 695                 700
Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe Lys Glu Asp Ile Gln
705                 710                 715                 720
Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu His Glu His Ile Ala
                725                 730                 735
Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly Ile Leu Gln Thr Val
            740                 745                 750
Lys Val Val Asp Glu Leu Val Lys Val Met Gly Arg His Lys Pro Glu
        755                 760                 765
Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln Thr Thr Gln Lys Gly
    770                 775                 780
Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile Glu Glu Gly Ile Lys
785                 790                 795                 800
Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro Val Glu Asn Thr Gln
                805                 810                 815
Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu Gln Asn Gly Arg Asp
            820                 825                 830
Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg Leu Ser Asp Tyr Asp
        835                 840                 845
Val Ala Ala Ile Val Pro Gln Ser Phe Leu Lys Asp Asp Ser Ile Asp
    850                 855                 860
Asn Lys Val Leu Thr Arg Ser Asp Lys Ala Arg Gly Lys Ser Asp Asn
865                 870                 875                 880
Val Pro Ser Glu Glu Val Val Lys Lys Met Lys Asn Tyr Trp Arg Gln
                885                 890                 895
Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys Phe Asp Asn Leu Thr
            900                 905                 910
Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp Lys Ala Gly Phe Ile
        915                 920                 925
Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr Lys His Val Ala Gln
    930                 935                 940
Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp Glu Asn Asp Lys Leu
945                 950                 955                 960
Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser Lys Leu Val Ser Asp
                965                 970                 975
Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg Glu Ile Asn Asn Tyr
            980                 985                 990
```

```
His His Ala His Asp Ala Tyr Leu Asn Ala Val Val Gly Thr Ala Leu
        995                 1000                1005
Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe Val Tyr Gly Asp Tyr
    1010                1015                1020
Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys Ser Glu Gln Glu Ile
1025                1030                1035                1040
Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser Asn Ile Met Asn Phe
                1045                1050                1055
Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu Ile Arg Lys Arg Pro
            1060                1065                1070
Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile Val Trp Asp Lys Gly
        1075                1080                1085
Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser Met Pro Gln Val Asn
    1090                1095                1100
Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly Phe Ser Lys Glu Ser
1105                1110                1115                1120
Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile Ala Arg Lys Lys Asp
                1125                1130                1135
Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser Pro Thr Val Ala Tyr
            1140                1145                1150
Ser Val Leu Val Val Ala Lys Val Glu Lys Gly Lys Ser Lys Lys Leu
        1155                1160                1165
Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile Met Glu Arg Ser Ser
    1170                1175                1180
Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala Lys Gly Tyr Lys Glu
1185                1190                1195                1200
Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys Tyr Ser Leu Phe Glu
                1205                1210                1215
Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser Ala Gly Glu Leu Gln
            1220                1225                1230
Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr Val Asn Phe Leu Tyr
        1235                1240                1245
Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser Pro Glu Asp Asn Glu
    1250                1255                1260
Gln Lys Gln Leu Phe Val Glu Gln His Lys His Tyr Leu Asp Glu Ile
1265                1270                1275                1280
Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val Ile Leu Ala Asp Ala
                1285                1290                1295
Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys His Arg Asp Lys Pro
            1300                1305                1310
Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu Phe Thr Leu Thr Asn
        1315                1320                1325
Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp Thr Thr Ile Asp Arg
    1330                1335                1340
Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp Ala Thr Leu Ile His
1345                1350                1355                1360
Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile Asp Leu Ser Gln Leu
                1365                1370                1375
Gly Gly Asp Ser Arg Ala Asp Pro Lys Lys Lys Arg Lys Val
            1380                1385                1390
```

<210> 16
<211> 1139
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 16
Met Pro Lys Lys Lys Arg Lys Val Ser Asp Leu Val Leu Gly Leu Ala
 1   5   10   15
Ile Gly Ile Gly Ser Val Gly Val Gly Ile Leu Asn Lys Val Thr Gly
            20   25   30
Glu Ile Ile His Lys Asn Ser Arg Ile Phe Pro Ala Ala Gln Ala Glu
        35   40   45
Asn Asn Leu Val Arg Arg Thr Asn Arg Gln Gly Arg Arg Leu Ala Arg
    50   55   60
Arg Lys Lys His Arg Arg Val Arg Leu Asn Arg Leu Phe Glu Glu Ser
65   70   75   80
Gly Leu Ile Thr Asp Phe Thr Lys Ile Ser Ile Asn Leu Asn Pro Tyr
                85   90   95
Gln Leu Arg Val Lys Gly Leu Thr Asp Glu Leu Ser Asn Glu Glu Leu
            100   105   110
Phe Ile Ala Leu Lys Asn Met Val Lys His Arg Gly Ile Ser Tyr Leu
        115   120   125
Asp Asp Ala Ser Asp Asp Gly Asn Ser Ser Val Gly Asp Tyr Ala Gln
    130   135   140
Ile Val Lys Glu Asn Ser Lys Gln Leu Glu Thr Lys Thr Pro Gly Gln
145   150   155   160
Ile Gln Leu Glu Arg Tyr Gln Thr Tyr Gly Gln Leu Arg Gly Asp Phe
                165   170   175
Thr Val Glu Lys Asp Gly Lys Lys His Arg Leu Ile Asn Val Phe Pro
            180   185   190
Thr Ser Ala Tyr Arg Ser Glu Ala Leu Arg Ile Leu Gln Thr Gln Gln
        195   200   205
Glu Phe Asn Pro Gln Ile Thr Asp Glu Phe Ile Asn Arg Tyr Leu Glu
    210   215   220
Ile Leu Thr Gly Lys Arg Lys Tyr Tyr His Gly Pro Gly Asn Glu Lys
225   230   235   240
Ser Arg Thr Asp Tyr Gly Arg Tyr Arg Thr Ser Gly Glu Thr Leu Asp
                245   250   255
Asn Ile Phe Gly Ile Leu Ile Gly Lys Cys Thr Phe Tyr Pro Asp Glu
            260   265   270
Phe Arg Ala Ala Lys Ala Ser Tyr Thr Ala Gln Glu Phe Asn Leu Leu
        275   280   285
Asn Asp Leu Asn Asn Leu Thr Val Pro Thr Glu Thr Lys Lys Leu Ser
    290   295   300
Lys Glu Gln Lys Asn Gln Ile Ile Asn Tyr Val Lys Asn Glu Lys Ala

```
305                 310                 315                 320
Met Gly Pro Ala Lys Leu Phe Lys Tyr Ile Ala Lys Leu Leu Ser Cys
                325                 330                 335
Asp Val Ala Asp Ile Lys Gly Tyr Arg Ile Asp Lys Ser Gly Lys Ala
            340                 345                 350
Glu Ile His Thr Phe Glu Ala Tyr Arg Lys Met Lys Thr Leu Glu Thr
        355                 360                 365
Leu Asp Ile Glu Gln Met Asp Arg Glu Thr Leu Asp Lys Leu Ala Tyr
    370                 375                 380
Val Leu Thr Leu Asn Thr Glu Arg Glu Gly Ile Gln Glu Ala Leu Glu
385                 390                 395                 400
His Glu Phe Ala Asp Gly Ser Phe Ser Gln Lys Gln Val Asp Glu Leu
                405                 410                 415
Val Gln Phe Arg Lys Ala Asn Ser Ser Ile Phe Gly Lys Gly Trp His
            420                 425                 430
Asn Phe Ser Val Lys Leu Met Met Glu Leu Ile Pro Glu Leu Tyr Glu
        435                 440                 445
Thr Ser Glu Glu Gln Met Thr Ile Leu Thr Arg Leu Gly Lys Gln Lys
    450                 455                 460
Thr Thr Ser Ser Ser Asn Lys Thr Lys Tyr Ile Asp Glu Lys Leu Leu
465                 470                 475                 480
Thr Glu Glu Ile Tyr Asn Pro Val Val Ala Lys Ser Val Arg Gln Ala
                485                 490                 495
Ile Lys Ile Val Asn Ala Ala Ile Lys Glu Tyr Gly Asp Phe Asp Asn
            500                 505                 510
Ile Val Ile Glu Met Ala Arg Glu Thr Asn Glu Asp Asp Glu Lys Lys
        515                 520                 525
Ala Ile Gln Lys Ile Gln Lys Ala Asn Lys Asp Glu Lys Asp Ala Ala
    530                 535                 540
Met Leu Lys Ala Ala Asn Gln Tyr Asn Gly Lys Ala Glu Leu Pro His
545                 550                 555                 560
Ser Val Phe His Gly His Lys Gln Leu Ala Thr Lys Ile Arg Leu Trp
                565                 570                 575
His Gln Gln Gly Glu Arg Cys Leu Tyr Thr Gly Lys Thr Ile Ser Ile
            580                 585                 590
His Asp Leu Ile Asn Asn Ser Asn Gln Phe Glu Val Ala Ala Ile Leu
        595                 600                 605
Pro Leu Ser Ile Thr Phe Asp Asp Ser Leu Ala Asn Lys Val Leu Val
    610                 615                 620
Tyr Ala Thr Ala Ala Gln Glu Lys Gly Gln Arg Thr Pro Tyr Gln Ala
625                 630                 635                 640
Leu Asp Ser Met Asp Asp Ala Trp Ser Phe Arg Glu Leu Lys Ala Phe
                645                 650                 655
Val Arg Glu Ser Lys Thr Leu Ser Asn Lys Lys Lys Glu Tyr Leu Leu
            660                 665                 670
Thr Glu Glu Asp Ile Ser Lys Phe Asp Val Arg Lys Lys Phe Ile Glu
        675                 680                 685
Arg Asn Leu Val Asp Thr Arg Tyr Ala Ser Arg Val Val Leu Asn Ala
    690                 695                 700
Leu Gln Glu His Phe Arg Ala His Lys Ile Asp Thr Lys Val Ser Val
```

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705                 710                 715                 720
Val Arg Gly Gln Phe Thr Ser Gln Leu Arg Arg His Trp Gly Ile Glu
                725                 730                 735
Lys Thr Arg Asp Thr Tyr His His His Ala Val Asp Ala Leu Ile Ile
            740                 745                 750
Ala Ala Ser Ser Gln Leu Asn Leu Trp Lys Lys Gln Lys Asn Thr Leu
        755                 760                 765
Val Ser Tyr Ser Glu Asp Gln Leu Leu Asp Ile Glu Thr Gly Glu Leu
    770                 775                 780
Ile Ser Asp Asp Glu Tyr Lys Glu Ser Val Phe Lys Ala Pro Tyr Gln
785                 790                 795                 800
His Phe Val Asp Thr Leu Lys Ser Lys Glu Phe Glu Asp Ser Ile Leu
                805                 810                 815
Phe Ser Tyr Gln Val Asp Ser Lys Phe Asn Arg Lys Ile Ser Asp Ala
            820                 825                 830
Thr Ile Tyr Ala Thr Arg Gln Ala Lys Val Gly Lys Asp Lys Ala Asp
        835                 840                 845
Glu Thr Tyr Val Leu Gly Lys Ile Lys Asp Ile Tyr Thr Gln Asp Gly
    850                 855                 860
Tyr Asp Ala Phe Met Lys Ile Tyr Lys Lys Asp Lys Ser Lys Phe Leu
865                 870                 875                 880
Met Tyr Arg His Asp Pro Gln Thr Phe Glu Lys Val Ile Glu Pro Ile
                885                 890                 895
Leu Glu Asn Tyr Pro Asn Lys Gln Ile Asn Asp Lys Gly Lys Glu Val
            900                 905                 910
Pro Cys Asn Pro Phe Leu Lys Tyr Lys Glu Glu His Gly Tyr Ile Arg
        915                 920                 925
Lys Tyr Ser Lys Lys Gly Asn Gly Pro Glu Ile Lys Ser Leu Lys Tyr
    930                 935                 940
Tyr Asp Ser Lys Leu Gly Asn His Ile Asp Ile Thr Pro Lys Asp Ser
945                 950                 955                 960
Asn Asn Lys Val Val Leu Gln Ser Val Ser Pro Trp Arg Ala Asp Val
                965                 970                 975
Tyr Phe Asn Lys Thr Thr Gly Lys Tyr Glu Ile Leu Gly Leu Lys Tyr
            980                 985                 990
Ala Asp Leu Gln Phe Asp Lys Gly Thr Gly Thr Tyr Lys Ile Ser Gln
        995                 1000                1005
Glu Lys Tyr Asn Asp Ile Lys Lys Lys Glu Gly Val Asp Ser Asp Ser
    1010                1015                1020
Glu Phe Lys Phe Thr Leu Tyr Lys Asn Asp Leu Leu Leu Val Lys Asp
1025                1030                1035                1040
Thr Glu Thr Lys Glu Gln Gln Leu Phe Arg Phe Leu Ser Arg Thr Met
                1045                1050                1055
Pro Lys Gln Lys His Tyr Val Glu Leu Lys Pro Tyr Asp Lys Gln Lys
            1060                1065                1070
Phe Glu Gly Gly Glu Ala Leu Ile Lys Val Leu Gly Asn Val Ala Asn
        1075                1080                1085
Ser Gly Gln Cys Lys Lys Gly Leu Gly Lys Ser Asn Ile Ser Ile Tyr
    1090                1095                1100
Lys Val Arg Thr Asp Val Leu Gly Asn Gln His Ile Ile Lys Asn Glu
```

1105 1110 1115 1120
Gly Asp Lys Pro Lys Leu Asp Phe Ser Arg Ala Asp Pro Lys Lys Lys
1125 1130 1135
Arg Lys Val

<210> 17
<211> 1100
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 17
Met Pro Lys Lys Lys Arg Lys Val Ala Ala Phe Lys Pro Asn Pro Ile
1 5 10 15
Asn Tyr Ile Leu Gly Leu Ala Ile Gly Ile Ala Ser Val Gly Trp Ala
20 25 30
Met Val Glu Ile Asp Glu Asp Glu Asn Pro Ile Cys Leu Ile Asp Leu
35 40 45
Gly Val Arg Val Phe Glu Arg Ala Glu Val Pro Lys Thr Gly Asp Ser
50 55 60
Leu Ala Met Ala Arg Arg Leu Ala Arg Ser Val Arg Arg Leu Thr Arg
65 70 75 80
Arg Arg Ala His Arg Leu Leu Arg Ala Arg Arg Leu Leu Lys Arg Glu
85 90 95
Gly Val Leu Gln Ala Ala Asp Phe Asp Glu Asn Gly Leu Ile Lys Ser
100 105 110
Leu Pro Asn Thr Pro Trp Gln Leu Arg Ala Ala Ala Leu Asp Arg Lys
115 120 125
Leu Thr Pro Leu Glu Trp Ser Ala Val Leu Leu His Leu Ile Lys His
130 135 140
Arg Gly Tyr Leu Ser Gln Arg Lys Asn Glu Gly Glu Thr Ala Asp Lys
145 150 155 160
Glu Leu Gly Ala Leu Leu Lys Gly Val Ala Asp Asn Ala His Ala Leu
165 170 175
Gln Thr Gly Asp Phe Arg Thr Pro Ala Glu Leu Ala Leu Asn Lys Phe
180 185 190
Glu Lys Glu Ser Gly His Ile Arg Asn Gln Arg Gly Asp Tyr Ser His
195 200 205
Thr Phe Ser Arg Lys Asp Leu Gln Ala Glu Leu Ile Leu Leu Phe Glu
210 215 220
Lys Gln Lys Glu Phe Gly Asn Pro His Val Ser Gly Gly Leu Lys Glu
225 230 235 240
Gly Ile Glu Thr Leu Leu Met Thr Gln Arg Pro Ala Leu Ser Gly Asp
245 250 255
Ala Val Gln Lys Met Leu Gly His Cys Thr Phe Glu Pro Ala Glu Pro
260 265 270

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Lys Ala Ala Lys Asn Thr Tyr Thr Ala Glu Arg Phe Ile Trp Leu Thr
        275                 280                 285
Lys Leu Asn Asn Leu Arg Ile Leu Glu Gln Gly Ser Glu Arg Pro Leu
    290                 295                 300
Thr Asp Thr Glu Arg Ala Thr Leu Met Asp Glu Pro Tyr Arg Lys Ser
305                 310                 315                 320
Lys Leu Thr Tyr Ala Gln Ala Arg Lys Leu Leu Gly Leu Glu Asp Thr
                325                 330                 335
Ala Phe Phe Lys Gly Leu Arg Tyr Gly Lys Asp Asn Ala Glu Ala Ser
            340                 345                 350
Thr Leu Met Glu Met Lys Ala Tyr His Ala Ile Ser Arg Ala Leu Glu
        355                 360                 365
Lys Glu Gly Leu Lys Asp Lys Lys Ser Pro Leu Asn Leu Ser Pro Glu
    370                 375                 380
Leu Gln Asp Glu Ile Gly Thr Ala Phe Ser Leu Phe Lys Thr Asp Glu
385                 390                 395                 400
Asp Ile Thr Gly Arg Leu Lys Asp Arg Ile Gln Pro Glu Ile Leu Glu
                405                 410                 415
Ala Leu Leu Lys His Ile Ser Phe Asp Lys Phe Val Gln Ile Ser Leu
            420                 425                 430
Lys Ala Leu Arg Arg Ile Val Pro Leu Met Glu Gln Gly Lys Arg Tyr
        435                 440                 445
Asp Glu Ala Cys Ala Glu Ile Tyr Gly Asp His Tyr Gly Lys Lys Asn
    450                 455                 460
Thr Glu Glu Lys Ile Tyr Leu Pro Pro Ile Pro Ala Asp Glu Ile Arg
465                 470                 475                 480
Asn Pro Val Val Leu Arg Ala Leu Ser Gln Ala Arg Lys Val Ile Asn
                485                 490                 495
Gly Val Val Arg Arg Tyr Gly Ser Pro Ala Arg Ile His Ile Glu Thr
            500                 505                 510
Ala Arg Glu Val Gly Lys Ser Phe Lys Asp Arg Lys Glu Ile Glu Lys
        515                 520                 525
Arg Gln Glu Glu Asn Arg Lys Asp Arg Glu Lys Ala Ala Ala Lys Phe
    530                 535                 540
Arg Glu Tyr Phe Pro Asn Phe Val Gly Glu Pro Lys Ser Lys Asp Ile
545                 550                 555                 560
Leu Lys Leu Arg Leu Tyr Glu Gln Gln His Gly Lys Cys Leu Tyr Ser
                565                 570                 575
Gly Lys Glu Ile Asn Leu Gly Arg Leu Asn Glu Lys Gly Tyr Val Glu
            580                 585                 590
Ile Ala Ala Ala Leu Pro Phe Ser Arg Thr Trp Asp Asp Ser Phe Asn
        595                 600                 605
Asn Lys Val Leu Val Leu Gly Ser Glu Ala Gln Asn Lys Gly Asn Gln
    610                 615                 620
Thr Pro Tyr Glu Tyr Phe Asn Gly Lys Asp Asn Ser Arg Glu Trp Gln
625                 630                 635                 640
Glu Phe Lys Ala Arg Val Glu Thr Ser Arg Phe Pro Arg Ser Lys Lys
                645                 650                 655
Gln Arg Ile Leu Leu Gln Lys Phe Asp Glu Asp Gly Phe Lys Glu Arg
            660                 665                 670
```

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Asn Leu Asn Asp Thr Arg Tyr Val Asn Arg Phe Leu Cys Gln Phe Val
        675                 680                 685
Ala Asp Arg Met Arg Leu Thr Gly Lys Gly Lys Lys Arg Val Phe Ala
    690                 695                 700
Ser Asn Gly Gln Ile Thr Asn Leu Leu Arg Gly Phe Trp Gly Leu Arg
705                 710                 715                 720
Lys Val Arg Ala Glu Asn Asp Arg His His Ala Leu Asp Ala Val Val
                725                 730                 735
Val Ala Cys Ser Thr Val Ala Met Gln Gln Lys Ile Thr Arg Phe Val
            740                 745                 750
Arg Tyr Lys Glu Met Asn Ala Phe Asp Gly Lys Thr Ile Asp Lys Glu
        755                 760                 765
Thr Gly Glu Val Leu His Gln Lys Thr His Phe Pro Gln Pro Trp Glu
    770                 775                 780
Phe Phe Ala Gln Glu Val Met Ile Arg Val Phe Gly Lys Pro Asp Gly
785                 790                 795                 800
Lys Pro Glu Phe Glu Glu Ala Asp Thr Pro Glu Lys Leu Arg Thr Leu
                805                 810                 815
Leu Ala Glu Lys Leu Ser Ser Arg Pro Glu Ala Val His Glu Tyr Val
            820                 825                 830
Thr Pro Leu Phe Val Ser Arg Ala Pro Asn Arg Lys Met Ser Gly Gln
        835                 840                 845
Gly His Met Glu Thr Val Lys Ser Ala Lys Arg Leu Asp Glu Gly Val
    850                 855                 860
Ser Val Leu Arg Val Pro Leu Thr Gln Leu Lys Leu Lys Asp Leu Glu
865                 870                 875                 880
Lys Met Val Asn Arg Glu Arg Glu Pro Lys Leu Tyr Glu Ala Leu Lys
                885                 890                 895
Ala Arg Leu Glu Ala His Lys Asp Asp Pro Ala Lys Ala Phe Ala Glu
            900                 905                 910
Pro Phe Tyr Lys Tyr Asp Lys Ala Gly Asn Arg Thr Gln Gln Val Lys
        915                 920                 925
Ala Val Arg Val Glu Gln Val Gln Lys Thr Gly Val Trp Val Arg Asn
    930                 935                 940
His Asn Gly Ile Ala Asp Asn Ala Thr Met Val Arg Val Asp Val Phe
945                 950                 955                 960
Glu Lys Gly Asp Lys Tyr Tyr Leu Val Pro Ile Tyr Ser Trp Gln Val
                965                 970                 975
Ala Lys Gly Ile Leu Pro Asp Arg Ala Val Val Gln Gly Lys Asp Glu
            980                 985                 990
Glu Asp Trp Gln Leu Ile Asp Asp Ser Phe Asn Phe Lys Phe Ser Leu
        995                 1000                1005
His Pro Asn Asp Leu Val Glu Val Ile Thr Lys Lys Ala Arg Met Phe
    1010                1015                1020
Gly Tyr Phe Ala Ser Cys His Arg Gly Thr Gly Asn Ile Asn Ile Arg
1025                1030                1035                1040
Ile His Asp Leu Asp His Lys Ile Gly Lys Asn Gly Ile Leu Glu Gly
                1045                1050                1055
Ile Gly Val Lys Thr Ala Leu Ser Phe Gln Lys Tyr Gln Ile Asp Glu
            1060                1065                1070
```

Leu Gly Lys Glu Ile Arg Pro Cys Arg Leu Lys Lys Arg Pro Pro Val
1075 1080 1085
Arg Ser Arg Ala Asp Pro Lys Lys Lys Arg Lys Val
1090 1095 1100

<210> 18
<211> 102
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> misc_feature
<222> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20
<223> n = A,T,C or G

<400> 18
nnnnnnnnnn nnnnnnnnnn gttttagagc tagaaatagc aagttaaaat aaggctagtc 60
cgttatcaac ttgaaaaagt ggcaccgagt cggtgctttt tt 102

<210> 19
<211> 110
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> misc_feature
<222> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20
<223> n = A,T,C or G

<400> 19
nnnnnnnnnn nnnnnnnnnn gtttttgtac tctcagaaat gcagaagcta caaagataag 60
gcttcatgcc gaaatcaaca ccctgtcatt ttatggcagg gtgttttttt 110

<210> 20
<211> 128
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> misc_feature
<222> 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17,
18, 19, 20
<223> n = A,T,C or G

<400> 20
nnnnnnnnnn nnnnnnnnnn gttgtagctc cctttctcga aagagaaccg ttgctacaat 60
aaggccgtct gaaaagatgt gccgcaacgc tctgcccctt aaagcttctg ctttaacggg 120
ctttttt 128

<210> 21
<211> 5787
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 21
agtctagctc aacagagctt ttaacccaaa ttggtacaat agaatacaac tttagatcat 60
aattctcaaa agaaagagat tccttagcta ttctatctgc cactccattt ccttctcggc 120
ttgtatgcac aagcataaaa tcctcaaact tgctaagtag atactttatg tcttggataa 180
ttggattgag acttgacaag cataactttc atgtaaccaa agacacaagt tgctgagaat 240
ccacctcaaa aatgatcttc ctataattga atcgggataa tgacagcaca gcccatctaa 300
gagcctccac ttctacttcc agcacgcttc ttacttttac cacagctctt gcacctaacc 360
ataacacctt ccctgtatga tcgcgaagca cccaccctaa gccacatttt aatccttctg 420
ttggccatgc cccatcaaag ttgcacttaa cccaagattg tggtggagct tcccatgttt 480
ctcgtctgtc ccgacggtgt tgtggttggt gctttcctta cattctgagc ctctttcctt 540
ctaatccact catctgcatc ttcttgtgtc cttactaata cctcattggt tccaaattcc 600
ctccctttaa gcaccagctc gtttctgttc ttccacagcc tcccaagtat ccaagggact 660
aaagcctcca cattcttcag atcaggatat tcttgtttaa gatgttgaac tctatggagg 720
tttgtatgaa ctgatgatct aggaccggat aagttccctt cttcatagcg aacttattca 780
aagaatgttt tgtgtatcat tcttgttaca ttgttattaa tgaaaaaata ttattggtca 840
ttggactgaa cacgagtgtt aaatatggac caggccccaa ataagatcca ttgatatatg 900
aattaaataa caagaataaa tcgagtcacc aaaccacttg ccttttttaa cgagacttgt 960
tcaccaactt gatacaaaag tcattatcct atgcaaatca ataatcatac aaaaatatcc 1020
aataacacta aaaaattaaa agaaatggat aatttcacaa tatgttatac gataaagaag 1080
ttacttttcc aagaaattca ctgattttat aagcccactt gcattagata aatggcaaaa 1140
aaaaacaaaa aggaaaagaa ataaagcacg aagaattcta gaaaatacga aatacgcttc 1200
aatgcagtgg gacccacggt tcaattattg ccaattttca gctccaccgt atatttaaaa 1260
aataaaacga taatgctaaa aaaatataaa tcgtaacgat cgttaaatct caacggctgg 1320
atcttatgac gaccgttaga aattgtggtt gtcgacgagt cagtaataaa cggcgtcaaa 1380
gtggttgcag ccggcacaca cgagtcgtgt ttatcaactc aaagcacaaa tacttttcct 1440
caacctaaaa ataaggcaat tagccaaaaa caactttgcg tgtaaacaac gctcaataca 1500
cgtgtcattt tattattagc tattgcttca ccgccttagc tttctcgtga cctagtcgtc 1560
ctcgtctttt cttcttcttc ttctataaaa caatacccaa agagctcttc ttcttcacaa 1620
ttcagatttc aatttctcaa aatcttaaaa actttctctc aattctctct accgtgatca 1680
aggtaaattt ctgtgttcct tattctctca aaatcttcga ttttgttttc gttcgatccc 1740
aatttcgtat atgttctttg gtttagattc tgttaatctt agatcgaaga cgattttctg 1800

ggtttgatcg ttagatatca tcttaattct cgattagggt ttcatagata tcatccgatt 1860
tgttcaaata atttgagttt tgtcgaataa ttactcttcg atttgtgatt tctatctaga 1920
tctggtgtta gtttctagtt tgtgcgatcg aatttgtcga ttaatctgag tttttctgat 1980
taacagacgc gtccatggtt gggtaccaac aaatggctgg tggacttaac gatatcttcg 2040
aagctcagaa gattgaatgg catgaggata ctggtggatc tagcatcccc ggacttgagg 2100
ttcttttcca aggacctctc gagccttata aatgccctga gtgtggaaaa tctttctctc 2160
aatctggaga tcttaggagg caccaaagga cccataccgg tgaaaaacct tataaatgcc 2220
ctgagtgtgg aaaatcattc agtaggagtg atcatcttac cacccatcag aggacccata 2280
ctggtgaaaa accttataaa tgccctgagt gtggaaaatc attctcacaa tcttcatctc 2340
ttgttaggca tcagaggact cataccggag aaaaacctta taaatgccct gagtgtggaa 2400
aatcattctc aacatctgga aaccttgtta ggcaccaaag gacccatact ggtgaaaaac 2460
cttataaatg ccctgagtgt ggaaaatcat tctctcagag agcaaacctt agggctcatc 2520
aaaggacaca cactggagaa aaaccttata aatgccctga gtgtggaaaa tctttctcta 2580
ggagtgataa gctcaccgag catcaaagga ctcacaccgg actcgaggac tacaaagacg 2640
atgacgacaa agactacaaa gacgatgacg acaaagacta caaagacgat gacgacaaaa 2700
agcttgatat cgccatgggg ggcgcgccaa gctatcaaac aagtttgtac aaaaaagcag 2760
gctccgcggc cgccccttc accatgggat ccctgcccac ctgcagctgt cttgatcgag 2820
ttatacaaaa agacaaaggc ccatattata cacaccttgg ggcaggacca agtgttgctg 2880
ctgtcaggga aatcatggag aataggtatg gtcaaaaagg aaacgcaata aggatagaaa 2940
tagtagtgta caccggtaaa gaagggaaaa gctctcatgg gtgtccaatt gctaagtggg 3000
ttttaagaag aagcagtgat gaagaaaaag ttctttgttt ggtccggcag cgtacaggcc 3060
accactgtcc aactgctgtg atggtggtgc tcatcatggt gtgggatggc atccctcttc 3120
caatggccga ccggctatac acagagctca cagagaatct aaagtcatac aatgggcacc 3180
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<210> 22
<211> 1992
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 22
agtctagctc aacagagctt ttaacccaaa ttggtacaat agaatacaac tttagatcat 60
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ttgtatgcac aagcataaaa tcctcaaact tgctaagtag atactttatg tcttggataa 180
ttggattgag acttgacaag cataactttc atgtaaccaa agacacaagt tgctgagaat 240
ccacctcaaa aatgatcttc ctataattga atcgggataa tgacagcaca gcccatctaa 300
gagcctccac ttctacttcc agcacgcttc ttacttttac cacagctctt gcacctaacc 360
ataacacctt ccctgtatga tcgcgaagca cccaccctaa gccacatttt aatccttctg 420
ttggccatgc cccatcaaag ttgcacttaa cccaagattg tggtggagct tcccatgttt 480
ctcgtctgtc ccgacggtgt tgtggttggt gctttcctta cattctgagc ctctttcctt 540
ctaatccact catctgcatc ttcttgtgtc cttactaata cctcattggt tccaaattcc 600
ctccctttaa gcaccagctc gtttctgttc ttccacagcc tcccaagtat ccaagggact 660
aaagcctcca cattcttcag atcaggatat tcttgtttaa gatgttgaac tctatggagg 720
tttgtatgaa ctgatgatct aggaccggat aagttccctt cttcatagcg aacttattca 780
aagaatgttt tgtgtatcat tcttgttaca ttgttattaa tgaaaaaata ttattggtca 840
ttggactgaa cacgagtgtt aaatatggac caggccccaa ataagatcca ttgatatatg 900
aattaaataa caagaataaa tcgagtcacc aaaccacttg ccttttttaa cgagacttgt 960
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ggtttgatcg ttagatatca tcttaattct cgattagggt ttcatagata tcatccgatt 1860
tgttcaaata atttgagttt tgtcgaataa ttactcttcg atttgtgatt tctatctaga 1920
tctggtgtta gtttctagtt tgtgcgatcg aatttgtcga ttaatctgag tttttctgat 1980
taacagacgc gt 1992

<210> 23
<211> 630
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 23
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gacctctcga gccttataaa tgccctgagt gtggaaaatc tttctctcaa tctggagatc 180
ttaggaggca ccaaaggacc cataccggtg aaaaacctta taaatgccct gagtgtggaa 240
aatcattcag taggagtgat catcttacca cccatcagag gacccatact ggtgaaaaac 300
cttataaatg ccctgagtgt ggaaaatcat tctcacaatc ttcatctctt gttaggcatc 360
agaggactca taccggagaa aaaccttata aatgccctga gtgtggaaaa tcattctcaa 420
catctggaaa ccttgttagg caccaaagga cccatactgg tgaaaaacct tataaatgcc 480
ctgagtgtgg aaaatcattc tctcagagag caaaccttag ggctcatcaa aggacacaca 540
ctggagaaaa accttataaa tgccctgagt gtggaaaatc tttctctagg agtgataagc 600
tcaccgagca tcaaaggact cacaccggac 630

<210> 24
<211> 97
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 24
tcgaggacta caaagacgat gacgacaaag actacaaaga cgatgacgac aaagactaca 60
aagacgatga cgacaaaaag cttgatatcg ccatggg 97

<210> 25
<211> 2166
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 25
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tattatacac accttggggc aggaccaagt gttgctgctg tcagggaaat catggagaat 120
aggtatggtc aaaaaggaaa cgcaataagg atagaaatag tagtgtacac cggtaaagaa 180
gggaaaagct ctcatgggtg tccaattgct aagtgggttt taagaagaag cagtgatgaa 240
gaaaaagttc tttgtttggt ccggcagcgt acaggccacc actgtccaac tgctgtgatg 300
gtggtgctca tcatggtgtg ggatggcatc cctcttccaa tggccgaccg gctatacaca 360
gagctcacag agaatctaaa gtcatacaat gggcacccta ccgacagaag atgcaccctc 420
aatgaaaatc gtacctgtac atgtcaagga attgatccag agacttgtgg agcttcattc 480
tcttttggct gttcatggag tatgtacttt aatggctgta agtttggtag aagcccaagc 540
cccagaagat ttagaattga tccaagctct cccttacatg aaaaaaacct tgaagataac 600
ttacagagtt tggctacacg attagctcca atttataagc agtatgctcc agtagcttac 660
caaaatcagg tggaatatga aaatgttgcc cgagaatgtc ggcttggcag caaggaaggt 720
cgacccttct ctggggtcac tgcttgcctg gacttctgtg ctcatcccca cagggacatt 780
cacaacatga ataatggaag cactgtggtt tgtaccttaa ctcgagaaga taaccgctct 840
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aagaaaatga aggcctcaga gcaaaaagac caggcagcta atgaaggtcc agaacagtcc 2040
tctgaagtaa atgaattgaa ccaaattcct tctcataaag cattaacatt aacccatgac 2100
aatgttgtca ccgtgtcccc ttatgctctc acacacgttg cggggcccta taaccattgg 2160
gtctga 2166

<210> 26
<211> 739
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 26
ctaggtgagt ctagagagtt aattaagacc cgggactagt ccctagagtc ctgctttaat 60
gagatatgcg agacgcctat gatcgcatga tatttgcttt caattctgtt gtgcacgttg 120
taaaaaacct gagcatgtgt agctcagatc cttaccgccg gtttcggttc attctaatga 180
atatatcacc cgttactatc gtatttttat gaataatatt ctccgttcaa tttactgatt 240
gtaccctact acttatatgt acaatattaa aatgaaaaca atatattgtg ctgaataggt 300
ttatagcgac atctatgata gagcgccaca ataacaaaca attgcgtttt attattacaa 360
atccaatttt aaaaaaagcg gcagaaccgg tcaaacctaa aagactgatt acataaatct 420
tattcaaatt tcaaaagtgc cccaggggct agtatctacg acacaccgag cggcgaacta 480
ataacgctca ctgaagggaa ctccggttcc ccgccggcgc gcatgggtga gattccttga 540
agttgagtat tggccgtccg ctctaccgaa agttacgggc accattcaac ccggtccagc 600
acggcggccg ggtaaccgac ttgctgcccc gagaattatg cagcattttt ttggtgtatg 660
tgggccccaa atgaagtgca ggtcaaacct tgacagtgac gacaaatcgt tgggcgggtc 720
cagggcgaat tttgcgacg   739

<210> 27
<211> 984
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 27
Met Val Gly Tyr Gln Gln Met Ala Gly Gly Leu Asn Asp Ile Phe Glu
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Ala Gln Lys Ile Glu Trp His Glu Asp Thr Gly Gly Ser Ser Ile Pro
            20   25   30
Gly Leu Glu Val Leu Phe Gln Gly Pro Leu Glu Pro Tyr Lys Cys Pro
        35   40   45
Glu Cys Gly Lys Ser Phe Ser Gln Ser Gly Asp Leu Arg Arg His Gln
    50   55   60
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65   70   75   80
Ser Phe Ser Arg Ser Asp His Leu Thr Thr His Gln Arg Thr His Thr
                85   90   95
Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln
            100   105   110
Ser Ser Ser Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro
        115   120   125
Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Asn Leu
    130   135   140
Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
145   150   155   160
Glu Cys Gly Lys Ser Phe Ser Gln Arg Ala Asn Leu Arg Ala His Gln
                165   170   175
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
            180   185   190
Ser Phe Ser Arg Ser Asp Lys Leu Thr Glu His Gln Arg Thr His Thr
        195   200   205

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Gly Leu Glu Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp
    210                 215                 220
Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp Lys Lys Leu Asp Ile Ala
225                 230                 235                 240
Met Gly Gly Ala Pro Ser Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Gly
                245                 250                 255
Ser Ala Ala Ala Pro Phe Thr Met Gly Ser Leu Pro Thr Cys Ser Cys
            260                 265                 270
Leu Asp Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu
        275                 280                 285
Gly Ala Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg
    290                 295                 300
Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr
305                 310                 315                 320
Gly Lys Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val
                325                 330                 335
Leu Arg Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln
            340                 345                 350
Arg Thr Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met
        355                 360                 365
Val Trp Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu
    370                 375                 380
Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg
385                 390                 395                 400
Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro
                405                 410                 415
Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr
            420                 425                 430
Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg
        435                 440                 445
Ile Asp Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu
    450                 455                 460
Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro
465                 470                 475                 480
Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys
                485                 490                 495
Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys
            500                 505                 510
Leu Asp Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn
        515                 520                 525
Gly Ser Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu
    530                 535                 540
Gly Val Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys
545                 550                 555                 560
Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys
                565                 570                 575
Ile Lys Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg
            580                 585                 590
Thr Cys Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala
        595                 600                 605
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Met Met Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys
    610                 615                 620
Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn
625                 630                 635                 640
Ser Lys Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val
                645                 650                 655
Gln Pro Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser
            660                 665                 670
Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro
        675                 680                 685
Val Lys Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser
    690                 695                 700
Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe
705                 710                 715                 720
Ser Glu Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu
                725                 730                 735
Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu
            740                 745                 750
Gly Glu Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro
        755                 760                 765
Leu Ile Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro
    770                 775                 780
His Gln Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu
785                 790                 795                 800
Ala Ser Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu
                805                 810                 815
Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu
            820                 825                 830
Glu Lys Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile
        835                 840                 845
Phe Leu Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly
    850                 855                 860
Ser Val Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro
865                 870                 875                 880
Val Glu His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe
                885                 890                 895
Tyr Gln His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn
            900                 905                 910
Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala
        915                 920                 925
Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser
    930                 935                 940
Glu Val Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu
945                 950                 955                 960
Thr His Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val
                965                 970                 975
Ala Gly Pro Tyr Asn His Trp Val
            980
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<210> 28
<211> 169
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 28
Leu Glu Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser
 1   5   10   15
Gly Asp Leu Arg Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
            20   25   30
Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp His Leu Thr
        35   40   45
Thr His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu
    50   55   60
Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu Val Arg His Gln Arg
65   70   75   80
Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser
                85   90   95
Phe Ser Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly
            100   105   110
Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Arg
        115   120   125
Ala Asn Leu Arg Ala His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr
    130   135   140
Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Lys Leu Thr
145   150   155   160
Glu His Gln Arg Thr His Thr Gly Leu
                165

<210> 29
<211> 27
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 29
Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp Lys
 1   5   10   15
Asp Tyr Lys Asp Asp Asp Asp Lys Lys Leu Asp
            20   25

<210> 30
<211> 718

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

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His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
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<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 35
tatccctatg acgtgcccga ttatgcc 27

<210> 36
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 36
cccaagaaaa aacgcaaggt ggaagctcct aagaaaaagc ggaaagtg 48

<210> 37
<211> 18
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 37
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<210> 38
<211> 2157
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 38
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caaaaaggaa acgcaataag gatagaaata gtagtgtaca ccggtaaaga agggaaaagc 180
tctcatgggt gtccaattgc taagtgggtt ttaagaagaa gcagtgatga agaaaaagtt 240
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<210> 39
<211> 744
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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gtaaaaaacc tgagcatgtg tagctcagat ccttaccgcc ggtttcggtt cattctaatg 180
aatatatcac ccgttactat cgtattttta tgaataatat tctccgttca atttactgat 240
tgtaccctac tacttatatg tacaatatta aaatgaaaac aatatattgt gctgaatagg 300
tttatagcga catctatgat agagcgccac aataacaaac aattgcgttt tattattaca 360
aatccaattt taaaaaaagc ggcagaaccg gtcaaaccta aaagactgat tacataaatc 420
ttattcaaat ttcaaaagtg ccccaggggc tagtatctac gacacaccga gcggcgaact 480
aataacgctc actgaaggga actccggttc cccgccggcg cgcatgggtg agattccttg 540
aagttgagta ttggccgtcc gctctaccga aagttacggg caccattcaa cccggtccag 600
cacggcggcc gggtaaccga cttgctgccc cgagaattat gcagcatttt tttggtgtat 660

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ccagggcgaa ttttgcgacg agct 744

<210> 40
<211> 2148
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

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Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
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Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
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Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala Gly Ala Pro Ser Tyr Gln Thr
                1365                1370                1375
Ser Leu Tyr Lys Lys Ala Gly Ser Ala Ala Ala Pro Phe Thr Met Arg
            1380                1385                1390
Thr Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser Leu Gly Ser Gly Ala
        1395                1400                1405
Pro Lys Lys Lys Arg Lys Val Glu Ala Pro Lys Lys Lys Arg Lys Val
    1410                1415                1420
Gly Gly Gly Gly Ser Gly Leu Pro Thr Cys Ser Cys Leu Asp Arg Val
1425                1430                1435                1440
Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro
                1445                1450                1455
Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys
            1460                1465                1470
Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys Glu Gly
        1475                1480                1485
Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg Arg Ser
    1490                1495                1500
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Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr Gly His
1505                1510                1515                1520
His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp Asp Gly
                1525                1530                1535
Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn
            1540                1545                1550
Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr Leu Asn
        1555                1560                1565
Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly
    1570                1575                1580
Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys
1585                1590                1595                1600
Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser
                1605                1610                1615
Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala
            1620                1625                1630
Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln
        1635                1640                1645
Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu Gly Ser
    1650                1655                1660
Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe Cys
1665                1670                1675                1680
Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr Val
                1685                1690                1695
Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val Ile Pro
            1700                1705                1710
Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr
        1715                1720                1725
Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys Ser Gly
    1730                1735                1740
Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr
1745                1750                1755                1760
Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr Glu
                1765                1770                1775
Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile Pro Arg
            1780                1785                1790
Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser
        1795                1800                1805
Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro Glu Val
    1810                1815                1820
Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp Asn Thr
1825                1830                1835                1840
Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys Glu Ala
                1845                1850                1855
Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala
            1860                1865                1870
Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser
        1875                1880                1885
Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly Ala Asn
    1890                1895                1900
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Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu Val Ala
1905                1910                1915                1920
Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile Asn Ser
                1925                1930                1935
Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln Pro Asn
            1940                1945                1950
His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro
        1955                1960                1965
Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro Ser Asp
    1970                1975                1980
Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro
1985                1990                1995                2000
His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala
                2005                2010                2015
Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile
            2020                2025                2030
Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu His Pro
        2035                2040                2045
Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys
    2050                2055                2060
Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe
2065                2070                2075                2080
Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu Gln Lys
                2085                2090                2095
Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val Asn Glu
            2100                2105                2110
Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His Asp Asn
        2115                2120                2125
Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly Pro Tyr
    2130                2135                2140
Asn His Trp Val
2145


<210> 41
<211> 1369
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 41
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1               5                  10                  15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20                  25                  30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35                  40                  45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
```

```
    50                  55                  60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65                  70                  75                  80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85                  90                  95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100                 105                 110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115                 120                 125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130                 135                 140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145                 150                 155                 160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165                 170                 175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180                 185                 190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195                 200                 205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
```

```
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
```

```
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
```

```
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala
                1365
```

<210> 42
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 42
```
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 1               5
```

<210> 43
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 43
```
Pro Lys Lys Lys Arg Lys Val Glu Ala Pro Lys Lys Lys Arg Lys Val
 1               5                  10                  15
```

<210> 44
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 44
Gly Gly Gly Gly Ser Gly
 1   5

<210> 45
<211> 718
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

```
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser Ser Leu Pro Thr Leu Gly
    370                 375                 380
Ser Asn Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe Ser Trp
            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Ile Asn Ser Glu Pro Ser Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
545                 550                 555                 560
Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
```

```
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715
```

<210> 46
<211> 793
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 46
```
ggccgcaata ttacaacttg tttaagcttt cgttgaacaa cggaaactcg acttgccttc 60
cgcacaatac atcatttctt cttagctttt tttcttcttc ttcgttcata cagtttttt 120
ttgtttatca gcttacattt tcttgaaccg tagctttcgt tttcttcttt ttaactttcc 180
attcggagtt tttgtatctt gtttcatagt ttgtcccagg attagaatga ttaggcatcg 240
aaccttcaag aatttgattg aataaaacat cttcattctt aagatatgaa gataatcttc 300
aaaaggcccc tgggaatctg aaagaagaga agcaggccca tttatatggg aaagaacaat 360
agtatttctt atataggccc atttaagttg aaaacaatct tcaaaagtcc cacatcgctt 420
agataagaaa acgaagctga gtttatatac agctagagtc gaagtagtga ttgaacaaag 480
caccagtggt ctagtggtag aatagtaccc tgccacggta cagacccggg ttcgattccc 540
ggctggtgca gacggaaaga tgtatgggct tgttttagag ctagaaatag caagttaaaa 600
taaggctagt ccgttatcaa cttgaaaaag tggcaccgag tcggtgcgtt taacaaagca 660
ccagtggtct agtggtagaa tagtaccctg ccacggtaca gacccgggtt cgattcccgg 720
ctggtgcaaa actaggccat ccatggagtt taaacaaaca aacttttttt aaaccacccc 780
gtgtcaacgc ggc                                                    793
```

<210> 47
<211> 473
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 47
```
ggccgcaata ttacaacttg tttaagcttt cgttgaacaa cggaaactcg acttgccttc 60
cgcacaatac atcatttctt cttagctttt tttcttcttc ttcgttcata cagtttttt 120
ttgtttatca gcttacattt tcttgaaccg tagctttcgt tttcttcttt ttaactttcc 180
attcggagtt tttgtatctt gtttcatagt ttgtcccagg attagaatga ttaggcatcg 240
aaccttcaag aatttgattg aataaaacat cttcattctt aagatatgaa gataatcttc 300
aaaaggcccc tgggaatctg aaagaagaga agcaggccca tttatatggg aaagaacaat 360
agtatttctt atataggccc atttaagttg aaaacaatct tcaaaagtcc cacatcgctt 420
agataagaaa acgaagctga gtttatatac agctagagtc gaagtagtga ttg        473
```

<210> 48

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

<220>
<223> Synthetic Construct

<400> 48
aacaaagcac cagtggtcta gtggtagaat agtaccctgc cacggtacag acccgggttc 60
gattcccggc tggtgca 77

<210> 49
<211> 76
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 49
gttttagagc tagaaatagc aagttaaaat aaggctagtc cgttatcaac ttgaaaaagt 60
ggcaccgagt cggtgc 76

<210> 50
<211> 7
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 50
tttttt 7

<210> 51
<211> 1223
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 51
ggccgcaata ttacaacttg tttaagcttt cgttgaacaa cggaaactcg acttgccttc 60
cgcacaatac atcatttctt cttagctttt tttcttcttc ttcgttcata cagtttttt 120
ttgtttatca gcttacattt tcttgaaccg tagctttcgt tttcttcttt ttaactttcc 180
attcggagtt tttgtatctt gtttcatagt ttgtcccagg attagaatga ttaggcatcg 240
aaccttcaag aatttgattg aataaaacat cttcattctt aagatatgaa gataatcttc 300
aaaaggcccc tgggaatctg aaagaagaga agcaggccca tttatatggg aaagaacaat 360
agtatttctt atataggccc atttaagttg aaaacaatct tcaaaagtcc cacatcgctt 420

agataagaaa acgaagctga gtttatatac agctagagtc gaagtagtga ttgaacaaag 480
caccagtggt ctagtggtag aatagtaccc tgccacggta cagacccggg ttcgattccc 540
ggctggtgca gcggcgcaag atctgatatt gttttagagc tagaaatagc aagttaaaat 600
aaggctagtc cgttatcaac ttgaaaaagt ggcaccgagt cggtgcgttt aacaaagcac 660
cagtggtcta gtggtagaat agtaccctgc cacggtacag acccgggttc gattcccggc 720
tggtgcacca ttggtccaag tgctattgtt ttagagctag aaatagcaag ttaaaataag 780
gctagtccgt tatcaacttg aaaaagtggc accgagtcgg tgcgtttaac aaagcaccag 840
tggtctagtg gtagaatagt accctgccac ggtacagacc cgggttcgat tcccggctgg 900
tgcaattctc gacggaaaga tgtagtttta gagctagaaa tagcaagtta aaataaggct 960
agtccgttat caacttgaaa aagtggcacc gagtcggtgc gtttaacaaa gcaccagtgg 1020
tctagtggta gaatagtacc ctgccacggt acagacccgg gttcgattcc cggctggtgc 1080
aaaaactagg ccatccatgg agttttagag ctagaaatag caagttaaaa taaggctagt 1140
ccgttatcaa cttgaaaaag tggcaccgag tcggtgcgtt taaacaaaca aacttttttt 1200
aaaccacccc gtgtcaacgc ggc 1223

<210> 52
<211> 130
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 52
Met Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asp Asn Gly Gly Thr
 1   5   10   15
Gly Asp Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu
            20   25   30
Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser
        35   40   45
Val Arg Gln Ser Ser Ala Gln Lys Arg Lys Tyr Thr Ile Lys Val Glu
    50   55   60
Val Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val
65   70   75   80
Ala Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe
                85   90   95
Ala Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu
            100   105   110
Leu Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly
        115   120   125
Ile Tyr
    130

<210> 53
<211> 247
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 53
Met Gly Pro Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 1   5   10   15
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Thr Gly Ala
            20   25   30
Val Thr Thr Ser Asn Tyr Ala Ser Trp Val Gln Glu Lys Pro Gly Lys
        35   40   45
Leu Phe Lys Gly Leu Ile Gly Gly Thr Asn Asn Arg Ala Pro Gly Val
    50   55   60
Pro Ser Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Thr Leu Thr
65   70   75   80
Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Phe Cys Ala Leu
                85   90   95
Trp Tyr Ser Asn His Trp Val Phe Gly Gln Gly Thr Lys Val Glu Leu
            100   105   110
Lys Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        115   120   125
Ser Ser Gly Gly Gly Ser Glu Val Lys Leu Leu Glu Ser Gly Gly Gly
    130   135   140
Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
145   150   155   160
Phe Ser Leu Thr Asp Tyr Gly Val Asn Trp Val Arg Gln Ala Pro Gly
                165   170   175
Arg Gly Leu Glu Trp Ile Gly Val Ile Trp Gly Asp Gly Ile Thr Asp
            180   185   190
Tyr Asn Ser Ala Leu Lys Asp Arg Phe Ile Ile Ser Lys Asp Asn Gly
        195   200   205
Lys Asn Thr Val Tyr Leu Gln Met Ser Lys Val Arg Ser Asp Asp Thr
    210   215   220
Ala Leu Tyr Tyr Cys Val Thr Gly Leu Phe Asp Tyr Trp Gly Gln Gly
225   230   235   240
Thr Leu Val Thr Val Ser Ser
                245

<210> 54
<211> 15526
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> misc_feature
<222> 157, 158, 159, 160, 161, 162, 163, 164, 165, 166, 167, 168,
169, 170, 171, 172, 173, 174, 175, 176
<223> n = A,T,C or G

<400> 54
ggtttcagaa ttcaaaaaaa gcaccgactc ggtgccactt ggccctgcag acatgggtga 60
tcctcatgtt ggccaagttg ataacggact agccttattt taacttgcta ggccctgcag 120
acatgggtga tcctcatgtt ggcctagctc taaaacnnnn nnnnnnnnnn nnnnnncaat 180
cactacttcg actctagctg tatataaact cagcttcgtt ttcttatcta agcgatgtgg 240
gacttttgaa gattgttttc aacttaaatg ggcctatata agaaatacta ttgttctttc 300
ccatataaat gggcctgctt ctcttctttc agattcccag gggccttttg aagattatct 360
tcatatctta agaatgaaga tgttttattc aatcaaattc ttgaaggttc gatgcctaat 420
cattctaatc ctgggacaaa ctatgaaaca agatacaaaa actccgaatg gaaagttaaa 480
aagaagaaaa cgaaagctac ggttcaagaa aatgtaagct gataaacaaa aaaaaactgt 540
atgaacgaag aagaagaaaa aaagctaaga agaaatgatg tattgtgcgg aaggcaagtc 600
gagtttccgt tgttcaacga aagcttaaac ctcgtcgcaa aattcgccct ggacccgccc 660
aacgatttgt cgtcactgtc aaggtttgac ctgcacttca tttggggccc acatacacca 720
aaaaaatgct gcataattct cggggcagca agtcggttac ccggccgccg tgctggaccg 780
ggttgaatgg tgcccgtaac tttcggtaga gcggacggcc aatactcaac ttcaaggaat 840
ctcacccatg cgcgccggcg gggaaccgga gttcccttca gtgagcgtta ttagttcgcc 900
gctcggtgtg tcgtagatac tagcccctgg ggcacttttg aaatttgaat aagatttatg 960
taatcagtct tttaggtttg accggttctg ccgctttttt taaaattgga tttgtaataa 1020
taaaacgcaa ttgtttgtta ttgtggcgct ctatcataga tgtcgctata aacctattca 1080
gcacaatata ttgttttcat tttaatattg tacatataag tagtagggta caatcagtaa 1140
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tgggcgggtc cagggcgaat tttgcgacaa catgtcgagg ctcagcagga ccggcatgca 15480
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<210> 55
<211> 163
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> misc_feature
<222> 144, 145, 146, 147, 148, 149, 150, 151, 152, 153, 154, 155,
156, 157, 158, 159, 160, 161, 162, 163
<223> n = A,T,C or G

<400> 55
aaaaaaagca ccgactcggt gccacttggc cctgcagaca tgggtgatcc tcatgttggc 60
caagttgata acggactagc cttattttaa cttgctaggc cctgcagaca tgggtgatcc 120
tcatgttggc ctagctctaa aacnnnnnnn nnnnnnnnnn nnn 163

<210> 56
<211> 450
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 56
caatcactac ttcgactcta gctgtatata aactcagctt cgttttctta tctaagcgat 60
gtgggacttt tgaagattgt tttcaactta aatgggccta tataagaaat actattgttc 120
tttcccatat aaatgggcct gcttctcttc tttcagattc ccaggggcct tttgaagatt 180
atcttcatat cttaagaatg aagatgtttt attcaatcaa attcttgaag gttcgatgcc 240
taatcattct aatcctggga caaactatga aacaagatac aaaaactccg aatggaaagt 300
taaaaagaag aaaacgaaag ctacggttca agaaaatgta agctgataaa caaaaaaaaa 360
ctgtatgaac gaagaagaag aaaaaaagct aagaagaaat gatgtattgt gcggaaggca 420
agtcgagttt ccgttgttca acgaaagctt 450

<210> 57

<211> 746
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 57
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tgacctgcac ttcatttggg gcccacatac accaaaaaaa tgctgcataa ttctcggggc 120
agcaagtcgg ttacccggcc gccgtgctgg accgggttga atggtgcccg taactttcgg 180
tagagcggac ggccaatact caacttcaag gaatctcacc catgcgcgcc ggcggggaac 240
cggagttccc ttcagtgagc gttattagtt cgccgctcgg tgtgtcgtag atactagccc 300
ctggggcact tttgaaattt gaataagatt tatgtaatca gtcttttagg tttgaccggt 360
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cgctctatca tagatgtcgc tataaaccta ttcagcacaa tatattgttt tcattttaat 480
attgtacata taagtagtag ggtacaatca gtaaattgaa cggagaatat tattcataaa 540
aatacgatag taacgggtga tatattcatt agaatgaacc gaaaccggcg gtaaggatct 600
gagctacaca tgctcaggtt ttttacaacg tgcacaacag aattgaaagc aaatatcatg 660
cgatcatagg cgtctcgcat atctcattaa agcaggactc tagggactag tcccgggtct 720
taattaactc tctagactca cctagg   746

<210> 58
<211> 2168
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 58
attaatcaga cccaatggtt atagggcccc gcaacgtgtg tgagagcata aggggacacg 60
gtgacaacat tgtcatgggt taatgttaat gctttatgag aaggaatttg gttcaattca 120
tttacttcag aggactgttc tggaccttca ttagctgcct ggtctttttg ctctgaggcc 180
ttcattttct tattcttagc ttctttagcc tcaaacttaa tcttgtttag ttcaaaacca 240
tgttggggct tatttaggtt tttgtgctgg taaaagacaa gggagaggcg ggttggatga 300
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gagcttttcc cttctttacc ggtgtacact actatttcta tccttattgc gtttcctttt 2040
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agggatcc 2168

<210> 59
<211> 48
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 59
cttgtcatcg tcatccttgt agtctttatc gtcatcgtct ttataatc 48

<210> 60
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 60
caccttcctc tttttcttag g 21

<210> 61
<211> 45
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 61

gctacctcct cctccgcttc ctcctcctcc gcttccacct cctcc 45

<210> 62
<211> 390
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 62
gtagatacct gagttagcgg cgatggcgga agggatagga ttaccgtctt tgaggagccc 60
ctgcattgcc ttcacgatga gttcacagtc agaattggta gcgaaaattg ggatagtgag 120
ctccatgttc aggtaggacc tccaagcggc gacaggcagt tcgactccgc ccactgtctg 180
ggtagccact ttggggacct ccaccttgat ggtatacttt ctcttctggg cactagactg 240
cctgacgctg catgtcacct tgtaggcctg gctccgtgag ttggagctga tccactctgc 300
caccccatta gcgaaattag aaggagccac tgtcacatcc cctgtcccac cattgtccac 360
gagcacgaac tgagtaaagt ttgaagccat 390

<210> 63
<211> 1990
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 63
ctgttaatca gaaaaactca gattaatcga caaattcgat cgcacaaact agaaactaac 60
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tgaacaaatc ggatgatatc tatgaaaccc taatcgagaa ttaagatgat atctaacgat 180
caaacccaga aaatcgtctt cgatctaaga ttaacagaat ctaaaccaaa gaacatatac 240
gaaattggga tcgaacgaaa acaaaatcga agattttgag agaataagga acacagaaat 300
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atacaagccg agaaggaaat ggagtggcag atagaatagc taaggaatct ctttcttttg 1920
agaattatga tctaaagttg tattctattg taccaatttg ggttaaaagc tctgttgagc 1980
tagactacgc 1990

<210> 64
<211> 2022
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 64
aaacaagttg taatgagttg ctggcctctc ttgggattgt tcatcaaagt agctgtccct 60
acacaccaca acagaatggt gttgtggaga gaaagcacag acacatcctt gagatggcaa 120
gggcacttaa gtttcagagt ggtgtaccta ccaggttttg gggagactgt gtcaagactg 180
ttgtatacct gatcaataga ctccctactc caatcttaca aggcaaatgt ccatatgaac 240
tactctatca gaaacatgcc aagcttgatc acttgagagt gtttgggtgt cttgcttttg 300
cagcaacact gcccaaaggt gacaaacttg cacctagagc caagcgaacc atcttcattg 360
gttattctga gactcaaaag ggttacaggt tgtatgactt ggataataag gtgatcatag 420
tgagcaggga tgtagtttc agagagtttc agttcccttt caaagagtcc atctcccatg 480
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gagggttgtg aagtacataa aaggttctcc aggtgttagg aa 2022

<210> 65
<211> 1986
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 65
agtctagctc aacagagctt ttaacccaaa ttggtacaat agaatacaac tttagatcat 60
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taacag 1986

<210> 66
<211> 115
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 66
ggatcatcaa caagtttgta caaaaaagca ggctctttaa agtattttta caacaattac 60
caacaacaac aaacaacaaa caacattaca attactattt acaattacaa aaaaa 115

<210> 67
<211> 4401
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 67
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attacagacg aatacaaggt tcctagcaag aagttcaagg tgttgggcaa cactgacagg 120
cactcgatca agaaaaatct cattggtgca ctccttttcg atagtgggga gactgccgaa 180
gcgaccagac tgaaaaggac tgctagaagg cgctataccc ggcgtaagaa tcgcatttgc 240
tacctccagg agatattctc taacgaaatg gccaaggttg atgacagctt ctttcatcgc 300
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agtggcgttg aagatagatt caacgcttca ctgggaacct accacgacct ccttaagatc 1800
attaaggaca aagatttctt ggataacgag gaaaatgagg acattctcga agatatagtc 1860
cttacactga cgttgtttga ggaccgtgaa atgatcgagg aaagattgaa gacctatgct 1920
catctcttcg acgataaggt tatgaagcag ctcaagcgta gaaggtacac aggttggggg 1980
cgtctttcta gaaagctgat taatggcata agggataaac aatctggaaa gacgattctg 2040
gatttcctca agtccgacgg cttcgccaac cgcaatttta tgcagcttat acacgacgat 2100
tccctgactt tcaaagagga catccagaag gcccaagtta gcggccaagg agattcactt 2160
cacgagcata tcgccaacct ggcgggtagc ccggcgatca agaaagggat tcttcagacc 2220
gtcaaggtcg tggatgagct ggtgaaagtt atgggccggc ataagcccga aaacatagtg 2280
atcgagatgg cccgtgaaaa tcagactacc caaaaaggac agaagaactc ccgcgagcgg 2340
atgaaaagga tagaggaagg catcaaggaa cttggaagcc agatcctgaa ggagcaccca 2400
gttgaaaaca cacagttgca aaatgagaag ctctatcttt actatctcca aaatggtaga 2460
gacatgtatg tggatcagga gttggacatt aacaggctct cagactacga tgtcgacgct 2520
atcgtgccgc aatcgttcct taaggacgat agtatagata ataaggtgct gactcggtcg 2580
gataaaaacc gtggcaagtc ggacaatgtt cccagtgagg aagttgtgaa gaagatgaag 2640
aactactggc gccaactgtt gaatgcaaaa ttgatcaccc agaggaagtt tgacaacctc 2700
acaaaagcag agcgcggtgg gctcagtgaa cttgataaag ctggattcat taagaggcaa 2760
cttgttgaga cacgccagat tacgaagcac gtcgcgcaga tactggattc taggatgaac 2820
accaagtacg acgagaatga taaattgatc agagaagtga aggttatcac attgaagtct 2880
aaactcgtgt ccgattttcg caaagacttc caattttata aggttcggga gatcaacaat 2940
tatcaccatg cacatgatgc ttacctcaac gccgtggttg gtacggcgtt gattaagaaa 3000
tacccgaagc tggagtctga gttcgtgtac ggggattata aggtctacga cgtgaggaaa 3060
atgatcgcta agagtgagca ggaaattggt aaagccaccg cgaagtattt cttttactct 3120
aacatcatga acttcttcaa gacagagata acgttggcaa atggtgaaat acgtaagaga 3180
cctctcatcg agactaacgg tgaaaccggg gaaatcgttt gggataaagg gcgggacttt 3240
gctactgttc gtaaggtcct ctccatgccg caagtgaata ttgttaagaa aacagaggtc 3300
cagacgggcg gattctctaa ggaatccatc cttcccaaaa gaaacagcga caagctgatt 3360
gcgaggaaga aagattggga ccctaagaaa tatggtgggt tcgattctcc aaccgttgcc 3420
tactccgtct tggtcgtggc gaaggttgag aagggtaaat ctaagaaact caaatccgtc 3480
aaggaactcc ttgggattac tatcatggag aggtcttcct tcgaaaagaa tcctatcgat 3540
ttccttgagg ctaaaggcta taaggaagtg aagaaggatc tcatcatcaa gctcccaaag 3600
tacagcctgt ttgagttgga aaacggaagg aagcgcatgt tggcatcagc tggagagctc 3660
cagaaaggga acgagctggc cttgccttct aagtatgtga acttcctcta tcttgcgtcg 3720
cactacgaga agctgaaagg cagtccagag gacaacgaac agaaacaact ttttgttgag 3780
caacacaagc attatctgga tgagattata gaacagatca gcgagttctc aaaaagagtc 3840
attcttgccg atgctaacct cgacaaggtg ctctccgcat acaacaaaca cagagacaag 3900
ccgatcaggg agcaggctga aaatatcatt catctcttca ctcttaccaa cctgggtgcc 3960
cccgcggcat tcaagtattt tgatacaacg attgaccgga aacgttacac aagcacgaag 4020
gaggtccttg atgcgaccct gattcatcaa agcataacag ggctctatga gacgagaatc 4080
gatttgtcac agctcggcgg agactacccg tatgacgtgc ccgattacgc tgccgcggca 4140
gctgagttca agcgcgagga acaggcccgg aaggcgaaag tgaacaatga gaagaaaaca 4200
gaaatcgtta aacctgagag ctgctcaaac gagggagacg ttaaggatct taagaggaaa 4260
gactctgagg atggcaacga aggagaggaa gaggaagcta gctcaaaacc taagaaacca 4320
aaggtggcac tctcacatct ccaagacatt gacgacaccg aagcagacca agaagaagaa 4380
cccgggggcg cgccatgata a 4401

<210> 68
<211> 774
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 68
ctagagtcct gctttaatga gatatgcgag acgcctatga tcgcatgata tttgctttca 60
attctgttgt gcacgttgta aaaaacctga gcatgtgtag ctcagatcct taccgccggt 120
ttcggttcat tctaatgaat atatcacccg ttactatcgt atttttatga ataatattct 180
ccgttcaatt tactgattgt accctactac ttatatgtac aatattaaaa tgaaaacaat 240
atattgtgct gaataggttt atagcgacat ctatgataga gcgccacaat aacaaacaat 300
tgcgttttat tattacaaat ccaattttaa aaaaagcggc agaaccggtc aaacctaaaa 360
gactgattac ataaatctta ttcaaatttc aaaagtgccc caggggctag tatctacgac 420
acaccgagcg gcgaactaat aacgctcact gaagggaact ccggttcccc gccggcgcgc 480
atgggtgaga ttccttgaag ttgagtattg gccgtccgct ctaccgaaag ttacgggcac 540
cattcaaccc ggtccagcac ggcggccggg taaccgactt gctgccccga gaattatgca 600
gcatttttt ggtgtatgtg ggccccaaat gaagtgcagg tcaaaccttg acagtgacga 660
caaatcgttg ggcgggtcca gggcgaattt tgcgacaaca tgtcgaggct cagcaggacc 720
ggcatgcaag ctagcttact agtgatattc tatagtgtca cctaaatctg cggc 774

<210> 69
<211> 1465
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 69
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1   5   10   15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20   25   30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35   40   45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50   55   60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65   70   75   80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85   90   95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100   105   110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115   120   125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130   135   140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145   150   155   160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro

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                165                 170                 175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180                 185                 190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195                 200                 205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
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                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
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                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Tyr Pro Tyr Asp Val Pro Asp Tyr
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                1365                1370                1375
Ala Ala Ala Ala Ala Glu Phe Lys Arg Glu Glu Gln Ala Arg Lys Ala
            1380                1385                1390
Lys Val Asn Asn Glu Lys Lys Thr Glu Ile Val Lys Pro Glu Ser Cys
        1395                1400                1405
Ser Asn Glu Gly Asp Val Lys Asp Leu Lys Arg Lys Asp Ser Glu Asp
    1410                1415                1420
Gly Asn Glu Gly Glu Glu Glu Glu Ala Ser Ser Lys Pro Lys Lys Pro
1425                1430                1435                1440
Lys Val Ala Leu Ser His Leu Gln Asp Ile Asp Asp Thr Glu Ala Asp
                1445                1450                1455
Gln Glu Glu Glu Pro Gly Gly Ala Pro
            1460                1465


<210> 70
<211> 1368
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 70
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1               5                  10                  15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20                  25                  30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35                  40                  45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50                  55                  60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65                  70                  75                  80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85                  90                  95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100                 105                 110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115                 120                 125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130                 135                 140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145                 150                 155                 160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165                 170                 175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180                 185                 190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195                 200                 205
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Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
```

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Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
```

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Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp
                1365
```

<210> 71
<211> 7

<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 71
Tyr Pro Tyr Asp Val Pro Asp
 1   5

<210> 72
<211> 90
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 72
Tyr Ala Ala Ala Ala Ala Glu Phe Lys Arg Glu Glu Gln Ala Arg Lys
 1   5   10   15
Ala Lys Val Asn Asn Glu Lys Lys Thr Glu Ile Val Lys Pro Glu Ser
            20   25   30
Cys Ser Asn Glu Gly Asp Val Lys Asp Leu Lys Arg Lys Asp Ser Glu
        35   40   45
Asp Gly Asn Glu Gly Glu Glu Glu Glu Ala Ser Ser Lys Pro Lys Lys
    50   55   60
Pro Lys Val Ala Leu Ser His Leu Gln Asp Ile Asp Asp Thr Glu Ala
65   70   75   80
Asp Gln Glu Glu Glu Pro Gly Gly Ala Pro
                85   90

<210> 73
<211> 908
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 73
Met Ala Ser Asn Phe Thr Gln Phe Val Leu Val Asp Asn Gly Gly Thr
 1   5   10   15
Gly Asp Val Thr Val Ala Pro Ser Asn Phe Ala Asn Gly Val Ala Glu
            20   25   30
Trp Ile Ser Ser Asn Ser Arg Ser Gln Ala Tyr Lys Val Thr Cys Ser
        35   40   45
Val Arg Gln Ser Ser Ala Gln Lys Arg Lys Tyr Thr Ile Lys Val Glu

```
    50                  55                  60
Val Pro Lys Val Ala Thr Gln Thr Val Gly Gly Val Glu Leu Pro Val
65                  70                  75                  80
Ala Ala Trp Arg Ser Tyr Leu Asn Met Glu Leu Thr Ile Pro Ile Phe
                85                  90                  95
Ala Thr Asn Ser Asp Cys Glu Leu Ile Val Lys Ala Met Gln Gly Leu
            100                 105                 110
Leu Lys Asp Gly Asn Pro Ile Pro Ser Ala Ile Ala Ala Asn Ser Gly
        115                 120                 125
Ile Tyr Ser Ala Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly
    130                 135                 140
Gly Gly Ser Gly Pro Lys Lys Lys Arg Lys Val Ala Asp Tyr Lys Asp
145                 150                 155                 160
Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ala Pro Ser
                165                 170                 175
Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Glu Gly Pro Ser Arg Pro Glu
            180                 185                 190
Gly Asp Ile Thr Gly Ser Leu Pro Thr Cys Ser Cys Leu Asp Arg Val
        195                 200                 205
Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro
    210                 215                 220
Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys
225                 230                 235                 240
Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys Glu Gly
                245                 250                 255
Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg Arg Ser
            260                 265                 270
Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr Gly His
        275                 280                 285
His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp Asp Gly
    290                 295                 300
Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn
305                 310                 315                 320
Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr Leu Asn
                325                 330                 335
Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly
            340                 345                 350
Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys
        355                 360                 365
Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser
    370                 375                 380
Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala
385                 390                 395                 400
Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln
                405                 410                 415
Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu Gly Ser
            420                 425                 430
Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe Cys
        435                 440                 445
Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr Val
```

```
    450                 455                 460
Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val Ile Pro
465                 470                 475                 480
Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr
                485                 490                 495
Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys Ser Gly
            500                 505                 510
Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr
        515                 520                 525
Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr Glu
    530                 535                 540
Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile Pro Arg
545                 550                 555                 560
Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser
                565                 570                 575
Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro Glu Val
            580                 585                 590
Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp Asn Thr
        595                 600                 605
Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys Glu Ala
    610                 615                 620
Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala
625                 630                 635                 640
Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser
                645                 650                 655
Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly Ala Asn
            660                 665                 670
Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu Val Ala
        675                 680                 685
Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile Asn Ser
    690                 695                 700
Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln Pro Asn
705                 710                 715                 720
His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro
                725                 730                 735
Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro Ser Asp
            740                 745                 750
Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro
        755                 760                 765
His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala
    770                 775                 780
Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile
785                 790                 795                 800
Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu His Pro
                805                 810                 815
Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys
            820                 825                 830
Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe
        835                 840                 845
Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu Gln Lys
```

```
    850                 855                 860
Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val Asn Glu
865                 870                 875                 880
Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His Asp Asn
                885                 890                 895
Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val
            900                 905
```

<210> 74
<211> 132
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 74

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

<210> 75
<211> 15
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 75

```
Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
 1               5                  10                  15
```

<210> 76
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 76
Gly Pro Lys Lys Lys Arg Lys Val Ala
 1   5

<210> 77
<211> 17
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 77
Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp Lys
 1   5   10   15
Gly

<210> 78
<211> 712
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 78
Gly Ser Leu Pro Thr Cys Ser Cys Leu Asp Arg Val Ile Gln Lys Asp
 1   5   10   15
Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala
            20   25   30
Val Arg Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile
        35   40   45
Arg Ile Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His
    50   55   60
Gly Cys Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu
65   70   75   80
Lys Val Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr
                85   90   95

```
Ala Val Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro
            100                 105                 110
Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr
        115                 120                 125
Asn Gly His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr
    130                 135                 140
Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser
145                 150                 155                 160
Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg
                165                 170                 175
Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His
            180                 185                 190
Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala
        195                 200                 205
Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu
    210                 215                 220
Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg
225                 230                 235                 240
Pro Phe Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His
                245                 250                 255
Arg Asp Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu
            260                 265                 270
Thr Arg Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln
        275                 280                 285
Leu His Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly
    290                 295                 300
Ser Lys Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val
305                 310                 315                 320
Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro
                325                 330                 335
Arg Ser Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His
            340                 345                 350
Lys Ile Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys
        355                 360                 365
Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser Ser Leu Pro Thr
    370                 375                 380
Leu Gly Ser Asn Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr
385                 390                 395                 400
Glu Pro His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser
                405                 410                 415
Leu Met Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe
            420                 425                 430
Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn
        435                 440                 445
Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His
    450                 455                 460
Cys Thr Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala
465                 470                 475                 480
Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr
                485                 490                 495
```

```
Leu Ser Ala Pro Val Met Glu Pro Leu Ile Asn Ser Glu Pro Ser Thr
            500                 505                 510
Gly Val Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser
        515                 520                 525
Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp
    530                 535                 540
Glu Gln His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser
545                 550                 555                 560
Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu
                565                 570                 575
Tyr Trp Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly
            580                 585                 590
Val Ala Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg
        595                 600                 605
Arg Glu Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His
    610                 615                 620
Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys
625                 630                 635                 640
Pro Gln His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu
                645                 650                 655
Ala Lys Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala
            660                 665                 670
Asn Glu Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile
        675                 680                 685
Pro Ser His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val
    690                 695                 700
Ser Pro Tyr Ala Leu Thr His Val
705                 710
```

<210> 79
<211> 16237
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 79
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cttctcggct tgtatgcaca agcataaaat cctcaaactt gctaagtaga tactttatgt 180
cttggataat tggattgaga cttgacaagc ataactttca tgtaaccaaa gacacaagtt 240
gctgagaatc cacctcaaaa atgatcttcc tataattgaa tcgggataat gacagcacag 300
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cccatgtttc tcgtctgtcc cgacggtgtt gtggttggtg ctttccttac attctgagcc 540
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ccaaattccc tccctttaag caccagctcg tttctgttct tccacagcct cccaagtatc 660
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<210> 84
<211> 27
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<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 84
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<210> 85
<211> 47
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 85
ccaagaaaaa acgcaaggtg gaagatccta agaaaaagcg gaaagtg 47

<210> 86
<211> 60
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 86
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<210> 87
<211> 621
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 87
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agtggcgaag agctccttag taagaactat catctggaaa atgaggtagc gcgcttaaag 180
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aaaaaaggtt ccggctccgg cggctccggt tctggaagcg ggggctcggg atcaggtgga 360
tctggatcag gagaggaatt gctttccaaa aactaccacc ttgagaatga ggtggccagg 420
ttaaagaagg ggagcggctc gggggggtagt ggatcggggt cgggcgggtc aggaagcggt 480
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agactaaaga agggaagcgg tagtggtggt tcagggtctg gttcaggtgg cagtgggtct 600
gggggctcag ggtccgggta g   621

<210> 88
<211> 768
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 88
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tcggttcatt ctaatgaata tatcacccgt tactatcgta tttttatgaa taatattctc 180
cgttcaattt actgattgta ccctactact tatatgtaca atattaaaat gaaaacaata 240
tattgtgctg aataggttta tagcgacatc tatgatagag cgccacaata acaaacaatt 300
gcgttttatt attacaaatc caattttaaa aaaagcggca gaaccggtca aacctaaaag 360
actgattaca taaatcttat tcaaatttca aaagtgcccc aggggctagt atctacgaca 420
caccgagcgg cgaactaata acgttcactg aagggaactc cggttccccg ccggcgcgca 480
tgggtgagat tccttgaagt tgagtattgg ccgtccgctc taccgaaagt tacgggcacc 540
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catttttttg gtgtatgtgg gccccaaatg aagtgcaggt caaaccttga cagtgacgac 660
aaatcgttgg gcgggtccag ggcgaatttt gcgacaacat gtcgaggctc agcaggaccg 720
gcatgcaagc tagcttacta gtgatattct atagtgtcac ctaaatct   768

<210> 89
<211> 2018
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 89
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aactctgcat catcagtctt tcctaagtgc ttgtcatatt ctacagtagt cagcctttgg 240
ttctgttcca ttggggttga cactggtctg cagcctccca gaccaacacc tgatatcagt 300
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tgctttaaac catagaggga ttcaacagcc tgcacacttt ggtctcccct tggctgtgaa 660
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tgacatccat ctggaaaagg aaccagccct tggaagcagc aacagatatg acagctttta 780
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gaacaatccc aagagaggcc agcaactcat tacaactt 2018

<210> 90
<211> 831
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 90
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cgcgtgacca tcacctgccg cagcagcacc ggcgccgtga ccaccagcaa ctacgccagc 120
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cactgggtgt tcggccaggg caccaaggtg gagctgaagc gcggcggcgg cggcagcggc 360
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accctggtga ccgtgagcag ctacccatac gatgttccag attacgctgg tggaggcgga 780
ggttctgggg gaggaggtag tggcggtggt ggttcaggag gcggcggaag c   831

<210> 91
<211> 711
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 91
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actactctga cctatggtgt tcaatgcttt tcccgttatc cggatcacat gaaacggcat 240
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gatgacggga cctacaagac gcgtgctgaa gtcaagtttg aaggtgatac ccttgttaat 360
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gagtacaact ttaactcaca caatgtatac atcacggcag acaaacaaaa gaatggaatc 480
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tatcaacaaa atactccaat tggcgatggc cctgtccttt taccagacaa ccattacctg 600
tcgacacaat ctgtcctttc gaaagatccc aacgaaaagc gtgaccacat ggtccttctt 660
gagtttgtaa ctgctgctgg gattacacat ggcatggatg agctctacaa a   711

<210> 92
<211> 2157
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 92
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<210> 93
<211> 263
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 93
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tgttgccggt cttgcgatga ttatcatata atttctgttg aattacgtta agcatgtaat 120
aattaacatg taatgcatga cgttatttat gagatgggtt tttatgatta gagtcccgca 180
attatacatt taatacgcga tagaaaacaa aatatagcgc gcaaactagg ataaattatc 240
gcgcgcggtg tcatctatgt tac 263

<210> 94
<211> 1626
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 94
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1   5   10   15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20   25   30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35   40   45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50   55   60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65   70   75   80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85   90   95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100   105   110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115   120   125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130   135   140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145   150   155   160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165   170   175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180   185   190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195   200   205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210   215   220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225   230   235   240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245   250   255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260   265   270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275   280   285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290   295   300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305   310   315   320

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Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
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His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
```

```
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala Tyr Pro Tyr Asp Val Pro Asp
                1365                1370                1375
Tyr Ala Ser Leu Gly Ser Gly Ser Pro Lys Lys Lys Arg Lys Val Glu
            1380                1385                1390
Asp Pro Lys Lys Lys Arg Lys Val Asp Gly Ile Gly Ser Gly Ser Asn
        1395                1400                1405
Gly Ser Ser Gly Ser Asn Gly Pro Thr Asp Ala Ala Glu Glu Glu Leu
    1410                1415                1420
Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys
1425                1430                1435                1440
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser
                1445                1450                1455
Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu
            1460                1465                1470
Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser
        1475                1480                1485
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu
    1490                1495                1500
Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu
1505                1510                1515                1520
```

Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser
1525 1530 1535
Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr
1540 1545 1550
His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly
1555 1560 1565
Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser
1570 1575 1580
Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala
1585 1590 1595 1600
Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly
1605 1610 1615
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
1620 1625

<210> 95
<211> 1369
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

```
        195                 200                 205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
```

```
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
```

995 1000 1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
1010 1015 1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025 1030 1035 1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
1045 1050 1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
1060 1065 1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
1075 1080 1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
1090 1095 1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105 1110 1115 1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
1125 1130 1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
1140 1145 1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
1155 1160 1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
1170 1175 1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185 1190 1195 1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
1205 1210 1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
1220 1225 1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
1235 1240 1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
1250 1255 1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265 1270 1275 1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
1285 1290 1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
1300 1305 1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
1315 1320 1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
1330 1335 1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345 1350 1355 1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala
1365

<210> 96

<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 96
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 1   5

<210> 97
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 97
Pro Lys Lys Lys Arg Lys Val Glu Asp Pro Lys Lys Lys Arg Lys Val
 1   5   10   15

<210> 98
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 98
Asp Gly Ile Gly Ser Gly Ser Asn Gly Ser Ser Gly Ser Asn Gly Pro
 1   5   10   15
Thr Asp Ala Ala
            20

<210> 99
<211> 206
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 99
Glu Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala

```
 1               5                  10                  15
Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly
            20                  25                  30
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys
        35                  40                  45
Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly
    50                  55                  60
Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
65                  70                  75                  80
Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu
                85                  90                  95
Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
            100                 105                 110
Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu
        115                 120                 125
Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly
    130                 135                 140
Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
145                 150                 155                 160
Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu
                165                 170                 175
Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly
            180                 185                 190
Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
        195                 200                 205


<210> 100
<211> 1286
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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

```
Lys Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        115                 120                 125
Ser Ser Gly Gly Gly Ser Glu Val Lys Leu Leu Glu Ser Gly Gly Gly
    130                 135                 140
Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
145                 150                 155                 160
Phe Ser Leu Thr Asp Tyr Gly Val Asn Trp Val Arg Gln Ala Pro Gly
                165                 170                 175
Arg Gly Leu Glu Trp Ile Gly Val Ile Trp Gly Asp Gly Ile Thr Asp
            180                 185                 190
Tyr Asn Ser Ala Leu Lys Asp Arg Phe Ile Ile Ser Lys Asp Asn Gly
        195                 200                 205
Lys Asn Thr Val Tyr Leu Gln Met Ser Lys Val Arg Ser Asp Asp Thr
    210                 215                 220
Ala Leu Tyr Tyr Cys Val Thr Gly Leu Phe Asp Tyr Trp Gly Gln Gly
225                 230                 235                 240
Thr Leu Val Thr Val Ser Ser Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
                245                 250                 255
Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
            260                 265                 270
Gly Gly Gly Gly Ser Leu Asp Pro Gly Gly Gly Gly Ser Gly Ser Lys
        275                 280                 285
Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp
    290                 295                 300
Gly Asp Val Asn Gly His Lys Phe Ser Val Arg Gly Glu Gly Glu Gly
305                 310                 315                 320
Asp Ala Thr Asn Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly
                325                 330                 335
Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly
            340                 345                 350
Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg His Asp Phe
        355                 360                 365
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Ser
    370                 375                 380
Phe Lys Asp Asp Gly Thr Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
385                 390                 395                 400
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys
                405                 410                 415
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Phe Asn Ser
            420                 425                 430
His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala
        435                 440                 445
Asn Phe Lys Ile Arg His Asn Val Glu Asp Gly Ser Val Gln Leu Ala
    450                 455                 460
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
465                 470                 475                 480
Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Val Leu Ser Lys Asp Pro
                485                 490                 495
Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala
            500                 505                 510
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Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys Gly Gly Gly Arg Thr
        515                 520                 525
Gly Arg Thr Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser Leu Gly Ser
    530                 535                 540
Gly Ala Pro Lys Lys Lys Arg Lys Val Glu Ala Pro Lys Lys Lys Arg
545                 550                 555                 560
Lys Val Gly Gly Gly Gly Ser Gly Leu Pro Thr Cys Ser Cys Leu Asp
                565                 570                 575
Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala
            580                 585                 590
Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly
        595                 600                 605
Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys
    610                 615                 620
Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg
625                 630                 635                 640
Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr
                645                 650                 655
Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp
            660                 665                 670
Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr
        675                 680                 685
Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr
    690                 695                 700
Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr
705                 710                 715                 720
Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn
                725                 730                 735
Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp
            740                 745                 750
Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser
        755                 760                 765
Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala
    770                 775                 780
Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu
785                 790                 795                 800
Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
                805                 810                 815
Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser
            820                 825                 830
Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val
        835                 840                 845
Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser
    850                 855                 860
Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys
865                 870                 875                 880
Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys
                885                 890                 895
Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met
            900                 905                 910
```

```
Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile
        915                 920                 925
Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys
    930                 935                 940
Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro
945                 950                 955                 960
Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp
                965                 970                 975
Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys
            980                 985                 990
Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr
        995                 1000                1005
Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu
    1010                1015                1020
Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly
1025                1030                1035                1040
Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu
                1045                1050                1055
Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile
            1060                1065                1070
Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln
        1075                1080                1085
Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser
    1090                1095                1100
Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro
1105                1110                1115                1120
Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
                1125                1130                1135
Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
            1140                1145                1150
Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val
        1155                1160                1165
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu
    1170                1175                1180
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
1185                1190                1195                1200
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
                1205                1210                1215
Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu
            1220                1225                1230
Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val
        1235                1240                1245
Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His
    1250                1255                1260
Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly
1265                1270                1275                1280
Pro Tyr Asn His Trp Val
                1285
```

<210> 101
<211> 277
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 101
Met Gly Pro Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 1   5   10   15
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Thr Gly Ala
            20   25   30
Val Thr Thr Ser Asn Tyr Ala Ser Trp Val Gln Glu Lys Pro Gly Lys
        35   40   45
Leu Phe Lys Gly Leu Ile Gly Gly Thr Asn Asn Arg Ala Pro Gly Val
    50   55   60
Pro Ser Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Thr Leu Thr
65   70   75   80
Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Phe Cys Ala Leu
                85   90   95
Trp Tyr Ser Asn His Trp Val Phe Gly Gln Gly Thr Lys Val Glu Leu
            100   105   110
Lys Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        115   120   125
Ser Ser Gly Gly Gly Ser Glu Val Lys Leu Leu Glu Ser Gly Gly Gly
    130   135   140
Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
145   150   155   160
Phe Ser Leu Thr Asp Tyr Gly Val Asn Trp Val Arg Gln Ala Pro Gly
                165   170   175
Arg Gly Leu Glu Trp Ile Gly Val Ile Trp Gly Asp Gly Ile Thr Asp
            180   185   190
Tyr Asn Ser Ala Leu Lys Asp Arg Phe Ile Ile Ser Lys Asp Asn Gly
        195   200   205
Lys Asn Thr Val Tyr Leu Gln Met Ser Lys Val Arg Ser Asp Asp Thr
    210   215   220
Ala Leu Tyr Tyr Cys Val Thr Gly Leu Phe Asp Tyr Trp Gly Gln Gly
225   230   235   240
Thr Leu Val Thr Val Ser Ser Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
                245   250   255
Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
            260   265   270
Gly Gly Gly Gly Ser
        275

<210> 102
<211> 237
<212> PRT

<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 102
Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu
 1   5   10   15
Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Arg Gly Glu Gly
            20   25   30
Glu Gly Asp Ala Thr Asn Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
        35   40   45
Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
    50   55   60
Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg His
65   70   75   80
Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr
                85   90   95
Ile Ser Phe Lys Asp Asp Gly Thr Tyr Lys Thr Arg Ala Glu Val Lys
            100   105   110
Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp
        115   120   125
Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Phe
    130   135   140
Asn Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn Gly Ile
145   150   155   160
Lys Ala Asn Phe Lys Ile Arg His Asn Val Glu Asp Gly Ser Val Gln
                165   170   175
Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val
            180   185   190
Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Val Leu Ser Lys
        195   200   205
Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr
    210   215   220
Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225   230   235

<210> 103
<211> 718
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 103
Leu Pro Thr Cys Ser Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1   5   10   15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg

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            20                  25                  30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35                  40                  45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
65                  70                  75                  80
Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
                85                  90                  95
Met Val Val Leu Ile Met Val Trp Asp Gly Ile Pro Leu Pro Met Ala
            100                 105                 110
Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
        115                 120                 125
His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
    130                 135                 140
Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
                165                 170                 175
Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
            180                 185                 190
Asn Leu Glu Asp Asn Leu Gln Ser Leu Ala Thr Arg Leu Ala Pro Ile
        195                 200                 205
Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
    210                 215                 220
Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
225                 230                 235                 240
Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
                245                 250                 255
Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
            260                 265                 270
Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
        275                 280                 285
Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
    290                 295                 300
Glu Gly Met Glu Ala Lys Ile Lys Ser Gly Ala Ile Glu Val Leu Ala
305                 310                 315                 320
Pro Arg Arg Lys Lys Arg Thr Cys Phe Thr Gln Pro Val Pro Arg Ser
                325                 330                 335
Gly Lys Lys Arg Ala Ala Met Met Thr Glu Val Leu Ala His Lys Ile
            340                 345                 350
Arg Ala Val Glu Lys Lys Pro Ile Pro Arg Ile Lys Arg Lys Asn Asn
        355                 360                 365
Ser Thr Thr Thr Asn Asn Ser Lys Pro Ser Ser Leu Pro Thr Leu Gly
    370                 375                 380
Ser Asn Thr Glu Thr Val Gln Pro Glu Val Lys Ser Glu Thr Glu Pro
385                 390                 395                 400
His Phe Ile Leu Lys Ser Ser Asp Asn Thr Lys Thr Tyr Ser Leu Met
                405                 410                 415
Pro Ser Ala Pro His Pro Val Lys Glu Ala Ser Pro Gly Phe Ser Trp
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            420                 425                 430
Ser Pro Lys Thr Ala Ser Ala Thr Pro Ala Pro Leu Lys Asn Asp Ala
        435                 440                 445
Thr Ala Ser Cys Gly Phe Ser Glu Arg Ser Ser Thr Pro His Cys Thr
    450                 455                 460
Met Pro Ser Gly Arg Leu Ser Gly Ala Asn Ala Ala Ala Ala Asp Gly
465                 470                 475                 480
Pro Gly Ile Ser Gln Leu Gly Glu Val Ala Pro Leu Pro Thr Leu Ser
                485                 490                 495
Ala Pro Val Met Glu Pro Leu Ile Asn Ser Glu Pro Ser Thr Gly Val
            500                 505                 510
Thr Glu Pro Leu Thr Pro His Gln Pro Asn His Gln Pro Ser Phe Leu
        515                 520                 525
Thr Ser Pro Gln Asp Leu Ala Ser Ser Pro Met Glu Glu Asp Glu Gln
    530                 535                 540
His Ser Glu Ala Asp Glu Pro Pro Ser Asp Glu Pro Leu Ser Asp Asp
545                 550                 555                 560
Pro Leu Ser Pro Ala Glu Glu Lys Leu Pro His Ile Asp Glu Tyr Trp
                565                 570                 575
Ser Asp Ser Glu His Ile Phe Leu Asp Ala Asn Ile Gly Gly Val Ala
            580                 585                 590
Ile Ala Pro Ala His Gly Ser Val Leu Ile Glu Cys Ala Arg Arg Glu
        595                 600                 605
Leu His Ala Thr Thr Pro Val Glu His Pro Asn Arg Asn His Pro Thr
    610                 615                 620
Arg Leu Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Lys Pro Gln
625                 630                 635                 640
His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
                645                 650                 655
Asn Lys Lys Met Lys Ala Ser Glu Gln Lys Asp Gln Ala Ala Asn Glu
            660                 665                 670
Gly Pro Glu Gln Ser Ser Glu Val Asn Glu Leu Asn Gln Ile Pro Ser
        675                 680                 685
His Lys Ala Leu Thr Leu Thr His Asp Asn Val Val Thr Val Ser Pro
    690                 695                 700
Tyr Ala Leu Thr His Val Ala Gly Pro Tyr Asn His Trp Val
705                 710                 715


<210> 104
<211> 411
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 104
Glu Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala
 1               5                  10                  15
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Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly
            20                  25                  30
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys
        35                  40                  45
Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly
    50                  55                  60
Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
65                  70                  75                  80
Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu
                85                  90                  95
Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
            100                 105                 110
Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu
        115                 120                 125
Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly
    130                 135                 140
Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
145                 150                 155                 160
Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu
                165                 170                 175
Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly
            180                 185                 190
Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu
        195                 200                 205
Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys
    210                 215                 220
Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly
225                 230                 235                 240
Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His
                245                 250                 255
Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly
            260                 265                 270
Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
        275                 280                 285
Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg
    290                 295                 300
Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly
305                 310                 315                 320
Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn
                325                 330                 335
Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser
            340                 345                 350
Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly
        355                 360                 365
Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val
    370                 375                 380
Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser
385                 390                 395                 400
Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
                405                 410
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<210> 105
<211> 17065
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 105
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tgttttcaac ttaaatgggc ctatataaga aatactattg ttctttccca tataaatggg 240
cctgcttctc ttctttcaga ttcccagggg ccttttgaag attatcttca tatcttaaga 300
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aagaaaaaaa gctaagaaga aatgatgtat tgtgcggaag gcaagtcgag tttccgttgt 540
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<220>
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<213> Artificial Sequence

<220>
<223> Synthetic Construct

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<220>
<223> Synthetic Construct

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<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic Construct

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ttgattgagt gtgcccggcg agagctgcac gctaccactc ctgttgagca ccccaaccgt 1860
aatcatccaa cccgcctctc ccttgtcttt taccagcaca aaaacctaaa taagccccaa 1920
catggttttg aactaaacaa gattaagttt gaggctaaag aagctaagaa taagaaaatg 1980
aaggcctcag agcaaaaaga ccaggcagct aatgaaggtc cagaacagtc ctctgaagta 2040
aatgaattga accaaattcc ttctcataaa gcattaacat taacccatga caatgttgtc 2100
accgtgtccc cttatgctct cacacacgtt gcggggccct ataaccattg ggtctga 2157

<210> 122
<211> 263
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 122
gagctcgaat ttccccgatc gttcaaacat ttggcaataa agtttcttaa gattgaatcc 60
tgttgccggt cttgcgatga ttatcatata atttctgttg aattacgtta agcatgtaat 120
aattaacatg taatgcatga cgttatttat gagatgggtt tttatgatta gagtcccgca 180
attatacatt taatacgcga tagaaaacaa aatatagcgc gcaaactagg ataaattatc 240
gcgcgcggtg tcatctatgt tac 263

<210> 123
<211> 1841
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 123
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1   5   10   15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20   25   30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35   40   45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50   55   60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65   70   75   80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85   90   95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100   105   110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115   120   125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130   135   140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145   150   155   160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165   170   175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180   185   190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195   200   205

```
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
```

```
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
```

```
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala Tyr Pro Tyr Asp Val Pro Asp
                1365                1370                1375
Tyr Ala Ser Leu Gly Ser Gly Ser Pro Lys Lys Lys Arg Lys Val Glu
            1380                1385                1390
Asp Pro Lys Lys Lys Arg Lys Val Glu Asp Ala Pro Lys Lys Lys Arg
        1395                1400                1405
```

```
Lys Val Asp Gly Ile Gly Ser Gly Ser Asn Gly Ser Ser Gly Ser Asn
    1410                1415                1420
Gly Pro Thr Asp Ala Ala Glu Glu Glu Leu Leu Ser Lys Asn Tyr His
1425                1430                1435                1440
Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly
                1445                1450                1455
Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
            1460                1465                1470
Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg
        1475                1480                1485
Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly
    1490                1495                1500
Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn
1505                1510                1515                1520
Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser
                1525                1530                1535
Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly
            1540                1545                1550
Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val
        1555                1560                1565
Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser
    1570                1575                1580
Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser
1585                1590                1595                1600
Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser
                1605                1610                1615
Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly
            1620                1625                1630
Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn
        1635                1640                1645
Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser
    1650                1655                1660
Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu
1665                1670                1675                1680
Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys
                1685                1690                1695
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser
            1700                1705                1710
Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu
        1715                1720                1725
Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser
    1730                1735                1740
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu
1745                1750                1755                1760
Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu
                1765                1770                1775
Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser
            1780                1785                1790
Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr
        1795                1800                1805
```

```
His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly
    1810                1815                1820
Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser
1825                1830                1835                1840
Gly
```

<210> 124
<211> 1761
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 124

```
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1               5                  10                  15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20                  25                  30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35                  40                  45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50                  55                  60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65                  70                  75                  80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85                  90                  95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100                 105                 110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115                 120                 125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130                 135                 140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145                 150                 155                 160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165                 170                 175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180                 185                 190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195                 200                 205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
```

```
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
```

```
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
```

```
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
                1205                1210                1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
            1220                1225                1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
        1235                1240                1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
    1250                1255                1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265                1270                1275                1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
                1285                1290                1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
            1300                1305                1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
        1315                1320                1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
    1330                1335                1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345                1350                1355                1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala Tyr Pro Tyr Asp Val Pro Asp
                1365                1370                1375
Tyr Ala Ser Leu Gly Ser Gly Ser Pro Lys Lys Lys Arg Lys Val Glu
            1380                1385                1390
Asp Pro Lys Lys Lys Arg Lys Val Glu Asp Ala Pro Lys Lys Lys Arg
        1395                1400                1405
Lys Val Asp Gly Ile Gly Ser Gly Ser Asn Gly Ser Ser Gly Ser Asn
    1410                1415                1420
Gly Pro Thr Asp Ala Ala Glu Glu Glu Leu Leu Ser Lys Asn Tyr His
1425                1430                1435                1440
Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly
                1445                1450                1455
Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr
```

```
            1460                1465                1470
His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly
        1475                1480                1485
Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn
    1490                1495                1500
Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser
1505                1510                1515                1520
Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys
                1525                1530                1535
Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly
            1540                1545                1550
Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser
        1555                1560                1565
Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser
    1570                1575                1580
Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu
1585                1590                1595                1600
Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly
                1605                1610                1615
Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu
            1620                1625                1630
Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys
        1635                1640                1645
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu
    1650                1655                1660
Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys
1665                1670                1675                1680
Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu
                1685                1690                1695
Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu
            1700                1705                1710
Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly
        1715                1720                1725
Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg
    1730                1735                1740
Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly
1745                1750                1755                1760
Gly
```

<210> 125
<211> 1369
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 125

```
Met Asp Lys Lys Tyr Ser Ile Gly Leu Ala Ile Gly Thr Asn Ser Val
 1               5                  10                  15
Gly Trp Ala Val Ile Thr Asp Glu Tyr Lys Val Pro Ser Lys Lys Phe
            20                  25                  30
Lys Val Leu Gly Asn Thr Asp Arg His Ser Ile Lys Lys Asn Leu Ile
        35                  40                  45
Gly Ala Leu Leu Phe Asp Ser Gly Glu Thr Ala Glu Ala Thr Arg Leu
    50                  55                  60
Lys Arg Thr Ala Arg Arg Arg Tyr Thr Arg Arg Lys Asn Arg Ile Cys
65                  70                  75                  80
Tyr Leu Gln Glu Ile Phe Ser Asn Glu Met Ala Lys Val Asp Asp Ser
                85                  90                  95
Phe Phe His Arg Leu Glu Glu Ser Phe Leu Val Glu Glu Asp Lys Lys
            100                 105                 110
His Glu Arg His Pro Ile Phe Gly Asn Ile Val Asp Glu Val Ala Tyr
        115                 120                 125
His Glu Lys Tyr Pro Thr Ile Tyr His Leu Arg Lys Lys Leu Val Asp
    130                 135                 140
Ser Thr Asp Lys Ala Asp Leu Arg Leu Ile Tyr Leu Ala Leu Ala His
145                 150                 155                 160
Met Ile Lys Phe Arg Gly His Phe Leu Ile Glu Gly Asp Leu Asn Pro
                165                 170                 175
Asp Asn Ser Asp Val Asp Lys Leu Phe Ile Gln Leu Val Gln Thr Tyr
            180                 185                 190
Asn Gln Leu Phe Glu Glu Asn Pro Ile Asn Ala Ser Gly Val Asp Ala
        195                 200                 205
Lys Ala Ile Leu Ser Ala Arg Leu Ser Lys Ser Arg Arg Leu Glu Asn
    210                 215                 220
Leu Ile Ala Gln Leu Pro Gly Glu Lys Lys Asn Gly Leu Phe Gly Asn
225                 230                 235                 240
Leu Ile Ala Leu Ser Leu Gly Leu Thr Pro Asn Phe Lys Ser Asn Phe
                245                 250                 255
Asp Leu Ala Glu Asp Ala Lys Leu Gln Leu Ser Lys Asp Thr Tyr Asp
            260                 265                 270
Asp Asp Leu Asp Asn Leu Leu Ala Gln Ile Gly Asp Gln Tyr Ala Asp
        275                 280                 285
Leu Phe Leu Ala Ala Lys Asn Leu Ser Asp Ala Ile Leu Leu Ser Asp
    290                 295                 300
Ile Leu Arg Val Asn Thr Glu Ile Thr Lys Ala Pro Leu Ser Ala Ser
305                 310                 315                 320
Met Ile Lys Arg Tyr Asp Glu His His Gln Asp Leu Thr Leu Leu Lys
                325                 330                 335
Ala Leu Val Arg Gln Gln Leu Pro Glu Lys Tyr Lys Glu Ile Phe Phe
            340                 345                 350
Asp Gln Ser Lys Asn Gly Tyr Ala Gly Tyr Ile Asp Gly Gly Ala Ser
        355                 360                 365
Gln Glu Glu Phe Tyr Lys Phe Ile Lys Pro Ile Leu Glu Lys Met Asp
    370                 375                 380
Gly Thr Glu Glu Leu Leu Val Lys Leu Asn Arg Glu Asp Leu Leu Arg
385                 390                 395                 400
```

```
Lys Gln Arg Thr Phe Asp Asn Gly Ser Ile Pro His Gln Ile His Leu
                405                 410                 415
Gly Glu Leu His Ala Ile Leu Arg Arg Gln Glu Asp Phe Tyr Pro Phe
            420                 425                 430
Leu Lys Asp Asn Arg Glu Lys Ile Glu Lys Ile Leu Thr Phe Arg Ile
        435                 440                 445
Pro Tyr Tyr Val Gly Pro Leu Ala Arg Gly Asn Ser Arg Phe Ala Trp
    450                 455                 460
Met Thr Arg Lys Ser Glu Glu Thr Ile Thr Pro Trp Asn Phe Glu Glu
465                 470                 475                 480
Val Val Asp Lys Gly Ala Ser Ala Gln Ser Phe Ile Glu Arg Met Thr
                485                 490                 495
Asn Phe Asp Lys Asn Leu Pro Asn Glu Lys Val Leu Pro Lys His Ser
            500                 505                 510
Leu Leu Tyr Glu Tyr Phe Thr Val Tyr Asn Glu Leu Thr Lys Val Lys
        515                 520                 525
Tyr Val Thr Glu Gly Met Arg Lys Pro Ala Phe Leu Ser Gly Glu Gln
    530                 535                 540
Lys Lys Ala Ile Val Asp Leu Leu Phe Lys Thr Asn Arg Lys Val Thr
545                 550                 555                 560
Val Lys Gln Leu Lys Glu Asp Tyr Phe Lys Lys Ile Glu Cys Phe Asp
                565                 570                 575
Ser Val Glu Ile Ser Gly Val Glu Asp Arg Phe Asn Ala Ser Leu Gly
            580                 585                 590
Thr Tyr His Asp Leu Leu Lys Ile Ile Lys Asp Lys Asp Phe Leu Asp
        595                 600                 605
Asn Glu Glu Asn Glu Asp Ile Leu Glu Asp Ile Val Leu Thr Leu Thr
    610                 615                 620
Leu Phe Glu Asp Arg Glu Met Ile Glu Glu Arg Leu Lys Thr Tyr Ala
625                 630                 635                 640
His Leu Phe Asp Asp Lys Val Met Lys Gln Leu Lys Arg Arg Arg Tyr
                645                 650                 655
Thr Gly Trp Gly Arg Leu Ser Arg Lys Leu Ile Asn Gly Ile Arg Asp
            660                 665                 670
Lys Gln Ser Gly Lys Thr Ile Leu Asp Phe Leu Lys Ser Asp Gly Phe
        675                 680                 685
Ala Asn Arg Asn Phe Met Gln Leu Ile His Asp Asp Ser Leu Thr Phe
    690                 695                 700
Lys Glu Asp Ile Gln Lys Ala Gln Val Ser Gly Gln Gly Asp Ser Leu
705                 710                 715                 720
His Glu His Ile Ala Asn Leu Ala Gly Ser Pro Ala Ile Lys Lys Gly
                725                 730                 735
Ile Leu Gln Thr Val Lys Val Val Asp Glu Leu Val Lys Val Met Gly
            740                 745                 750
Arg His Lys Pro Glu Asn Ile Val Ile Glu Met Ala Arg Glu Asn Gln
        755                 760                 765
Thr Thr Gln Lys Gly Gln Lys Asn Ser Arg Glu Arg Met Lys Arg Ile
    770                 775                 780
Glu Glu Gly Ile Lys Glu Leu Gly Ser Gln Ile Leu Lys Glu His Pro
785                 790                 795                 800
```

```
Val Glu Asn Thr Gln Leu Gln Asn Glu Lys Leu Tyr Leu Tyr Tyr Leu
                805                 810                 815
Gln Asn Gly Arg Asp Met Tyr Val Asp Gln Glu Leu Asp Ile Asn Arg
            820                 825                 830
Leu Ser Asp Tyr Asp Val Asp Ala Ile Val Pro Gln Ser Phe Leu Lys
        835                 840                 845
Asp Asp Ser Ile Asp Asn Lys Val Leu Thr Arg Ser Asp Lys Asn Arg
    850                 855                 860
Gly Lys Ser Asp Asn Val Pro Ser Glu Glu Val Val Lys Lys Met Lys
865                 870                 875                 880
Asn Tyr Trp Arg Gln Leu Leu Asn Ala Lys Leu Ile Thr Gln Arg Lys
                885                 890                 895
Phe Asp Asn Leu Thr Lys Ala Glu Arg Gly Gly Leu Ser Glu Leu Asp
            900                 905                 910
Lys Ala Gly Phe Ile Lys Arg Gln Leu Val Glu Thr Arg Gln Ile Thr
        915                 920                 925
Lys His Val Ala Gln Ile Leu Asp Ser Arg Met Asn Thr Lys Tyr Asp
    930                 935                 940
Glu Asn Asp Lys Leu Ile Arg Glu Val Lys Val Ile Thr Leu Lys Ser
945                 950                 955                 960
Lys Leu Val Ser Asp Phe Arg Lys Asp Phe Gln Phe Tyr Lys Val Arg
                965                 970                 975
Glu Ile Asn Asn Tyr His His Ala His Asp Ala Tyr Leu Asn Ala Val
            980                 985                 990
Val Gly Thr Ala Leu Ile Lys Lys Tyr Pro Lys Leu Glu Ser Glu Phe
        995                 1000                1005
Val Tyr Gly Asp Tyr Lys Val Tyr Asp Val Arg Lys Met Ile Ala Lys
    1010                1015                1020
Ser Glu Gln Glu Ile Gly Lys Ala Thr Ala Lys Tyr Phe Phe Tyr Ser
1025                1030                1035                1040
Asn Ile Met Asn Phe Phe Lys Thr Glu Ile Thr Leu Ala Asn Gly Glu
                1045                1050                1055
Ile Arg Lys Arg Pro Leu Ile Glu Thr Asn Gly Glu Thr Gly Glu Ile
            1060                1065                1070
Val Trp Asp Lys Gly Arg Asp Phe Ala Thr Val Arg Lys Val Leu Ser
        1075                1080                1085
Met Pro Gln Val Asn Ile Val Lys Lys Thr Glu Val Gln Thr Gly Gly
    1090                1095                1100
Phe Ser Lys Glu Ser Ile Leu Pro Lys Arg Asn Ser Asp Lys Leu Ile
1105                1110                1115                1120
Ala Arg Lys Lys Asp Trp Asp Pro Lys Lys Tyr Gly Gly Phe Asp Ser
                1125                1130                1135
Pro Thr Val Ala Tyr Ser Val Leu Val Val Ala Lys Val Glu Lys Gly
            1140                1145                1150
Lys Ser Lys Lys Leu Lys Ser Val Lys Glu Leu Leu Gly Ile Thr Ile
        1155                1160                1165
Met Glu Arg Ser Ser Phe Glu Lys Asn Pro Ile Asp Phe Leu Glu Ala
    1170                1175                1180
Lys Gly Tyr Lys Glu Val Lys Lys Asp Leu Ile Ile Lys Leu Pro Lys
1185                1190                1195                1200
```

Tyr Ser Leu Phe Glu Leu Glu Asn Gly Arg Lys Arg Met Leu Ala Ser
1205 1210 1215
Ala Gly Glu Leu Gln Lys Gly Asn Glu Leu Ala Leu Pro Ser Lys Tyr
1220 1225 1230
Val Asn Phe Leu Tyr Leu Ala Ser His Tyr Glu Lys Leu Lys Gly Ser
1235 1240 1245
Pro Glu Asp Asn Glu Gln Lys Gln Leu Phe Val Glu Gln His Lys His
1250 1255 1260
Tyr Leu Asp Glu Ile Ile Glu Gln Ile Ser Glu Phe Ser Lys Arg Val
1265 1270 1275 1280
Ile Leu Ala Asp Ala Asn Leu Asp Lys Val Leu Ser Ala Tyr Asn Lys
1285 1290 1295
His Arg Asp Lys Pro Ile Arg Glu Gln Ala Glu Asn Ile Ile His Leu
1300 1305 1310
Phe Thr Leu Thr Asn Leu Gly Ala Pro Ala Ala Phe Lys Tyr Phe Asp
1315 1320 1325
Thr Thr Ile Asp Arg Lys Arg Tyr Thr Ser Thr Lys Glu Val Leu Asp
1330 1335 1340
Ala Thr Leu Ile His Gln Ser Ile Thr Gly Leu Tyr Glu Thr Arg Ile
1345 1350 1355 1360
Asp Leu Ser Gln Leu Gly Gly Asp Ala
1365

<210> 126
<211> 9
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 126
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
1 5

<210> 127
<211> 26
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 127
Pro Lys Lys Lys Arg Lys Val Glu Asp Pro Lys Lys Lys Arg Lys Val
1 5 10 15
Glu Asp Ala Pro Lys Lys Lys Arg Lys Val
20 25

<210> 128
<211> 20
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 128
Asp Gly Ile Gly Ser Gly Ser Asn Gly Ser Ser Gly Ser Asn Gly Pro
 1   5   10   15
Thr Asp Ala Ala
            20

<210> 129
<211> 411
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 129
Glu Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala
 1   5   10   15
Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly
            20   25   30
Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys
        35   40   45
Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly
    50   55   60
Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
65   70   75   80
Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu
                85   90   95
Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
            100   105   110
Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu
        115   120   125
Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly
    130   135   140
Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
145   150   155   160
Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu
                165   170   175
Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly
            180   185   190

```
Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu
        195                 200                 205
Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys
    210                 215                 220
Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly
225                 230                 235                 240
Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His
                245                 250                 255
Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly
            260                 265                 270
Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
        275                 280                 285
Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala Arg
    290                 295                 300
Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser Gly Gly
305                 310                 315                 320
Ser Gly Ser Gly Gly Ser Gly Ser Gly Glu Glu Leu Leu Ser Lys Asn
                325                 330                 335
Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser
            340                 345                 350
Gly Gly Ser Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly
        355                 360                 365
Ser Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val
    370                 375                 380
Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Ser
385                 390                 395                 400
Gly Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
                405                 410
```

<210> 130
<211> 331
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 130

```
Glu Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val Ala
 1               5                  10                  15
Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly Ser
            20                  25                  30
Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu Val
        35                  40                  45
Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly Gly
    50                  55                  60
Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn Glu
65                  70                  75                  80
Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser Gly
```

```
                85                  90                  95
Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu Asn
            100                 105                 110
Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly Ser
        115                 120                 125
Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu Glu
    130                 135                 140
Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser Gly
145                 150                 155                 160
Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His Leu
                165                 170                 175
Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly Ser
            180                 185                 190
Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr His
        195                 200                 205
Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly Gly
    210                 215                 220
Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn Tyr
225                 230                 235                 240
His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser Gly
                245                 250                 255
Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys Asn
            260                 265                 270
Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly Ser
        275                 280                 285
Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly Glu Glu Leu Leu Ser Lys
    290                 295                 300
Asn Tyr His Leu Glu Asn Glu Val Ala Arg Leu Lys Lys Gly Ser Gly
305                 310                 315                 320
Ser Gly Gly Ser Gly Ser Gly Gly Ser Gly Gly
                325                 330


<210> 131
<211> 1286
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 131
Met Gly Pro Asp Ile Val Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
 1               5                  10                  15
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Arg Ser Ser Thr Gly Ala
            20                  25                  30
Val Thr Thr Ser Asn Tyr Ala Ser Trp Val Gln Glu Lys Pro Gly Lys
        35                  40                  45
Leu Phe Lys Gly Leu Ile Gly Gly Thr Asn Asn Arg Ala Pro Gly Val
    50                  55                  60
```

```
Pro Ser Arg Phe Ser Gly Ser Leu Ile Gly Asp Lys Ala Thr Leu Thr
65                  70                  75                  80
Ile Ser Ser Leu Gln Pro Glu Asp Phe Ala Thr Tyr Phe Cys Ala Leu
                85                  90                  95
Trp Tyr Ser Asn His Trp Val Phe Gly Gln Gly Thr Lys Val Glu Leu
            100                 105                 110
Lys Arg Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly
        115                 120                 125
Ser Ser Gly Gly Gly Ser Glu Val Lys Leu Leu Glu Ser Gly Gly Gly
    130                 135                 140
Leu Val Gln Pro Gly Gly Ser Leu Lys Leu Ser Cys Ala Val Ser Gly
145                 150                 155                 160
Phe Ser Leu Thr Asp Tyr Gly Val Asn Trp Val Arg Gln Ala Pro Gly
                165                 170                 175
Arg Gly Leu Glu Trp Ile Gly Val Ile Trp Gly Asp Gly Ile Thr Asp
            180                 185                 190
Tyr Asn Ser Ala Leu Lys Asp Arg Phe Ile Ile Ser Lys Asp Asn Gly
        195                 200                 205
Lys Asn Thr Val Tyr Leu Gln Met Ser Lys Val Arg Ser Asp Asp Thr
    210                 215                 220
Ala Leu Tyr Tyr Cys Val Thr Gly Leu Phe Asp Tyr Trp Gly Gln Gly
225                 230                 235                 240
Thr Leu Val Thr Val Ser Ser Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
                245                 250                 255
Gly Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser Gly Gly Gly Gly Ser
            260                 265                 270
Gly Gly Gly Gly Ser Leu Asp Pro Gly Gly Gly Gly Ser Gly Ser Lys
        275                 280                 285
Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp
    290                 295                 300
Gly Asp Val Asn Gly His Lys Phe Ser Val Arg Gly Glu Gly Glu Gly
305                 310                 315                 320
Asp Ala Thr Asn Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr Thr Gly
                325                 330                 335
Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr Tyr Gly
            340                 345                 350
Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg His Asp Phe
        355                 360                 365
Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Ser
    370                 375                 380
Phe Lys Asp Asp Gly Thr Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu
385                 390                 395                 400
Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys
                405                 410                 415
Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Phe Asn Ser
            420                 425                 430
His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala
        435                 440                 445
Asn Phe Lys Ile Arg His Asn Val Glu Asp Gly Ser Val Gln Leu Ala
    450                 455                 460
```

```
Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu
465                 470                 475                 480
Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Val Leu Ser Lys Asp Pro
                485                 490                 495
Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr Ala Ala
            500                 505                 510
Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys Gly Gly Gly Arg Thr
        515                 520                 525
Gly Arg Thr Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Ser Leu Gly Ser
    530                 535                 540
Gly Ala Pro Lys Lys Lys Arg Lys Val Glu Ala Pro Lys Lys Lys Arg
545                 550                 555                 560
Lys Val Gly Gly Gly Gly Ser Gly Leu Pro Thr Cys Ser Cys Leu Asp
                565                 570                 575
Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala
            580                 585                 590
Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly
        595                 600                 605
Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys
    610                 615                 620
Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg
625                 630                 635                 640
Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr
                645                 650                 655
Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp
            660                 665                 670
Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr
        675                 680                 685
Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr
    690                 695                 700
Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr
705                 710                 715                 720
Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn
                725                 730                 735
Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp
            740                 745                 750
Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser
        755                 760                 765
Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala
    770                 775                 780
Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu
785                 790                 795                 800
Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
                805                 810                 815
Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser
            820                 825                 830
Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val
        835                 840                 845
Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser
    850                 855                 860
```

```
Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys
865                 870                 875                 880
Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys
                885                 890                 895
Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met
            900                 905                 910
Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile
        915                 920                 925
Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys
    930                 935                 940
Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro
945                 950                 955                 960
Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp
                965                 970                 975
Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys
            980                 985                 990
Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr
        995                 1000                1005
Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu
    1010                1015                1020
Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly
1025                1030                1035                1040
Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu
                1045                1050                1055
Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile
            1060                1065                1070
Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln
        1075                1080                1085
Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser
    1090                1095                1100
Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro
1105                1110                1115                1120
Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
                1125                1130                1135
Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
            1140                1145                1150
Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val
        1155                1160                1165
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu
    1170                1175                1180
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
1185                1190                1195                1200
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
                1205                1210                1215
Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu
            1220                1225                1230
Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val
        1235                1240                1245
Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His
    1250                1255                1260
```

```
Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly
1265                1270                1275                1280
Pro Tyr Asn His Trp Val
                1285
```

<210> 132
<211> 277
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 132

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

275

<210> 133
<211> 237
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 133
Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu
 1   5   10   15
Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Arg Gly Glu Gly
            20   25   30
Glu Gly Asp Ala Thr Asn Gly Lys Leu Thr Leu Lys Phe Ile Cys Thr
        35   40   45
Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr Leu Thr
    50   55   60
Tyr Gly Val Gln Cys Phe Ser Arg Tyr Pro Asp His Met Lys Arg His
65   70   75   80
Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr
                85   90   95
Ile Ser Phe Lys Asp Asp Gly Thr Tyr Lys Thr Arg Ala Glu Val Lys
            100   105   110
Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp
        115   120   125
Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Phe
    130   135   140
Asn Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn Gly Ile
145   150   155   160
Lys Ala Asn Phe Lys Ile Arg His Asn Val Glu Asp Gly Ser Val Gln
                165   170   175
Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val
            180   185   190
Leu Leu Pro Asp Asn His Tyr Leu Ser Thr Gln Ser Val Leu Ser Lys
        195   200   205
Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe Val Thr
    210   215   220
Ala Ala Gly Ile Thr His Gly Met Asp Glu Leu Tyr Lys
225   230   235

<210> 134
<211> 9
<212> PRT
<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 134
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala
 1   5

<210> 135
<211> 16
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 135
Pro Lys Lys Lys Arg Lys Val Glu Ala Pro Lys Lys Lys Arg Lys Val
 1   5   10   15

<210> 136
<211> 6
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 136
Gly Gly Gly Gly Ser Gly
 1   5

<210> 137
<211> 718
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 137
Leu Pro Thr Cys Ser Cys Leu Asp Arg Val Ile Gln Lys Asp Lys Gly
 1   5   10   15
Pro Tyr Tyr Thr His Leu Gly Ala Gly Pro Ser Val Ala Ala Val Arg
            20   25   30
Glu Ile Met Glu Asn Arg Tyr Gly Gln Lys Gly Asn Ala Ile Arg Ile
        35   40   45
Glu Ile Val Val Tyr Thr Gly Lys Glu Gly Lys Ser Ser His Gly Cys
    50   55   60

```
Pro Ile Ala Lys Trp Val Leu Arg Arg Ser Ser Asp Glu Glu Lys Val
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Leu Cys Leu Val Arg Gln Arg Thr Gly His His Cys Pro Thr Ala Val
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Asp Arg Leu Tyr Thr Glu Leu Thr Glu Asn Leu Lys Ser Tyr Asn Gly
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His Pro Thr Asp Arg Arg Cys Thr Leu Asn Glu Asn Arg Thr Cys Thr
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Cys Gln Gly Ile Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly
145                 150                 155                 160
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Phe Gly Arg Ser Pro
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Ser Pro Arg Arg Phe Arg Ile Asp Pro Ser Ser Pro Leu His Glu Lys
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Tyr Lys Gln Tyr Ala Pro Val Ala Tyr Gln Asn Gln Val Glu Tyr Glu
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Asn Val Ala Arg Glu Cys Arg Leu Gly Ser Lys Glu Gly Arg Pro Phe
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Ser Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Pro His Arg Asp
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Ile His Asn Met Asn Asn Gly Ser Thr Val Val Cys Thr Leu Thr Arg
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Glu Asp Asn Arg Ser Leu Gly Val Ile Pro Gln Asp Glu Gln Leu His
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Val Leu Pro Leu Tyr Lys Leu Ser Asp Thr Asp Glu Phe Gly Ser Lys
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His Gly Phe Glu Leu Asn Lys Ile Lys Phe Glu Ala Lys Glu Ala Lys
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<210> 147
<211> 5676
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 147
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<210> 148
<211> 510
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 148
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<210> 149
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<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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<210> 150
<211> 950
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 150
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            20   25   30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn
        35   40   45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50   55   60
Pro Glu Cys Gly Lys Ser Phe Ser Thr Thr Gly Asn Leu Thr Val His
65   70   75   80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85   90   95
Lys Ser Phe Ser Gln Ser Ser Asn Leu Val Arg His Gln Arg Thr His
            100   105   110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115   120   125
Arg Ser Asp Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
    130   135   140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Ser
145   150   155   160
Leu Val Arg His Gln Arg Thr His Thr Gly Asn Arg Ala Lys Leu Gly
                165   170   175
Thr Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp
            180   185   190
Lys Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ser Leu Glu Val Leu Phe
        195   200   205
Gly Ala Pro Ser Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Gly Ser Ala
    210   215   220
Ala Ala Pro Phe Thr Met Gly Ser Leu Pro Thr Cys Ser Cys Leu Asp

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Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala
                245                 250                 255
Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly
            260                 265                 270
Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys
        275                 280                 285
Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg
    290                 295                 300
Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr
305                 310                 315                 320
Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp
                325                 330                 335
Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr
            340                 345                 350
Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr
        355                 360                 365
Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr
    370                 375                 380
Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn
385                 390                 395                 400
Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp
                405                 410                 415
Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser
            420                 425                 430
Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala
        435                 440                 445
Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu
    450                 455                 460
Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
465                 470                 475                 480
Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser
                485                 490                 495
Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val
            500                 505                 510
Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser
        515                 520                 525
Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys
    530                 535                 540
Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys
545                 550                 555                 560
Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met
                565                 570                 575
Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile
            580                 585                 590
Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys
        595                 600                 605
Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro
    610                 615                 620
Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp
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645 650 655
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660 665 670
Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu
675 680 685
Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly
690 695 700
Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu
705 710 715 720
Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile
725 730 735
Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln
740 745 750
Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser
755 760 765
Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro
770 775 780
Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
785 790 795 800
Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
805 810 815
Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val
820 825 830
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu
835 840 845
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
850 855 860
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
865 870 875 880
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885 890 895
Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val
900 905 910
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<210> 151
<211> 950
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 151
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Arg Glu Asp Asn Leu His Thr His Gln Arg Thr His Thr Gly Glu Lys
            20   25   30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn
        35   40   45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50   55   60
Pro Glu Cys Gly Lys Ser Phe Ser His Arg Thr Thr Leu Thr Asn His
65   70   75   80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85   90   95
Lys Ser Phe Ser Gln Arg Ala His Leu Glu Arg His Gln Arg Thr His
            100   105   110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115   120   125
Arg Ser Asp Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
    130   135   140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser
145   150   155   160
Leu Val Arg His Gln Arg Thr His Thr Gly Asn Arg Ala Lys Leu Gly
                165   170   175
Thr Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp
            180   185   190
Lys Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ser Leu Glu Val Leu Phe
        195   200   205
Gly Ala Pro Ser Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Gly Ser Ala
    210   215   220
Ala Ala Pro Phe Thr Met Gly Ser Leu Pro Thr Cys Ser Cys Leu Asp
225   230   235   240
Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala
                245   250   255
Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly
            260   265   270
Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys
        275   280   285
Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg
    290   295   300
Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr
305   310   315   320
Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp
                325   330   335
Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr
            340   345   350
Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr
        355   360   365
Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr
    370   375   380

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Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn
385                 390                 395                 400
Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp
                405                 410                 415
Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser
            420                 425                 430
Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala
        435                 440                 445
Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu
    450                 455                 460
Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
465                 470                 475                 480
Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser
                485                 490                 495
Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val
            500                 505                 510
Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser
        515                 520                 525
Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys
    530                 535                 540
Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys
545                 550                 555                 560
Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met
                565                 570                 575
Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile
            580                 585                 590
Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys
        595                 600                 605
Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro
    610                 615                 620
Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp
625                 630                 635                 640
Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys
                645                 650                 655
Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr
            660                 665                 670
Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu
        675                 680                 685
Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly
    690                 695                 700
Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu
705                 710                 715                 720
Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile
                725                 730                 735
Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln
            740                 745                 750
Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser
        755                 760                 765
Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro
    770                 775                 780
```

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Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
785                 790                 795                 800
Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
                805                 810                 815
Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val
            820                 825                 830
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu
        835                 840                 845
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
    850                 855                 860
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
865                 870                 875                 880
Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu
                885                 890                 895
Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val
            900                 905                 910
Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His
        915                 920                 925
Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly
    930                 935                 940
Pro Tyr Asn His Trp Val
945                 950


<210> 152
<211> 170
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 152
Met Val Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
 1               5                  10                  15
Gln Asn Ser Thr Leu Thr Glu His Gln Arg Thr His Thr Gly Glu Lys
            20                  25                  30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Arg Ser Asp Asn
        35                  40                  45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50                  55                  60
Pro Glu Cys Gly Lys Ser Phe Ser Thr Thr Gly Asn Leu Thr Val His
65                  70                  75                  80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85                  90                  95
Lys Ser Phe Ser Gln Ser Ser Asn Leu Val Arg His Gln Arg Thr His
            100                 105                 110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115                 120                 125
Arg Ser Asp Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
```

```
    130                 135                 140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Ser
145                 150                 155                 160
Leu Val Arg His Gln Arg Thr His Thr Gly
                165                 170


<210> 153
<211> 170
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 153
Met Val Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
 1               5                  10                  15
Arg Glu Asp Asn Leu His Thr His Gln Arg Thr His Thr Gly Glu Lys
            20                  25                  30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Asn
        35                  40                  45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50                  55                  60
Pro Glu Cys Gly Lys Ser Phe Ser His Arg Thr Thr Leu Thr Asn His
65                  70                  75                  80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85                  90                  95
Lys Ser Phe Ser Gln Arg Ala His Leu Glu Arg His Gln Arg Thr His
            100                 105                 110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115                 120                 125
Arg Ser Asp Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
    130                 135                 140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser
145                 150                 155                 160
Leu Val Arg His Gln Arg Thr His Thr Gly
                165                 170


<210> 154
<211> 5676
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 154
agtctagctc aacagagctt ttaacccaaa ttggtacaat agaatacaac tttagatcat 60
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aattctcaaa agaaagagat tccttagcta ttctatctgc cactccattt ccttctcggc 120
ttgtatgcac aagcataaaa tcctcaaact tgctaagtag atactttatg tcttggataa 180
ttggattgag acttgacaag cataactttc atgtaaccaa agacacaagt tgctgagaat 240
ccacctcaaa aatgatcttc ctataattga atcgggataa tgacagcaca gcccatctaa 300
gagcctccac ttctacttcc agcacgcttc ttacttttac cacagctctt gcacctaacc 360
ataacacctt ccctgtatga tcgcgaagca cccaccctaa gccacatttt aatccttctg 420
ttggccatgc cccatcaaag ttgcacttaa cccaagattg tggtggagct tcccatgttt 480
ctcgtctgtc ccgacggtgt tgtggttggt gctttcctta cattctgagc ctctttcctt 540
ctaatccact catctgcatc ttcttgtgtc cttactaata cctcattggt tccaaattcc 600
ctccctttaa gcaccagctc gtttctgttc ttccacagcc tcccaagtat ccaagggact 660
aaagcctcca cattcttcag atcaggatat tcttgtttaa gatgttgaac tctatggagg 720
tttgtatgaa ctgatgatct aggaccggat aagttccctt cttcatagcg aacttattca 780
aagaatgttt tgtgtatcat tcttgttaca ttgttattaa tgaaaaaata ttattggtca 840
ttggactgaa cacgagtgtt aaatatggac caggccccaa ataagatcca ttgatatatg 900
aattaaataa caagaataaa tcgagtcacc aaaccacttg ccttttttaa cgagacttgt 960
tcaccaactt gatacaaaag tcattatcct atgcaaatca ataatcatac aaaaatatcc 1020
aataacacta aaaaattaaa agaaatggat aatttcacaa tatgttatac gataaagaag 1080
ttacttttcc aagaaattca ctgattttat aagcccactt gcattagata aatggcaaaa 1140
aaaaacaaaa aggaaaagaa ataaagcacg aagaattcta gaaaatacga aatacgcttc 1200
aatgcagtgg gacccacggt tcaattattg ccaattttca gctccaccgt atatttaaaa 1260
aataaaacga taatgctaaa aaaatataaa tcgtaacgat cgttaaatct caacggctgg 1320
atcttatgac gaccgttaga aattgtggtt gtcgacgagt cagtaataaa cggcgtcaaa 1380
gtggttgcag ccggcacaca cgagtcgtgt ttatcaactc aaagcacaaa tacttttcct 1440
caacctaaaa ataaggcaat tagccaaaaa caactttgcg tgtaaacaac gctcaataca 1500
cgtgtcattt tattattagc tattgcttca ccgccttagc tttctcgtga cctagtcgtc 1560
ctcgtctttt cttcttcttc ttctataaaa caatacccaa agagctcttc ttcttcacaa 1620
ttcagatttc aatttctcaa aatcttaaaa actttctctc aattctctct accgtgatca 1680
aggtaaattt ctgtgttcct tattctctca aaatcttcga ttttgttttc gttcgatccc 1740
aatttcgtat atgttctttg gtttagattc tgttaatctt agatcgaaga cgattttctg 1800
ggtttgatcg ttagatatca tcttaattct cgattagggt ttcatagata tcatccgatt 1860
tgttcaaata atttgagttt tgtcgaataa ttactcttcg atttgtgatt tctatctaga 1920
tctggtgtta gtttctagtt tgtgcgatcg aatttgtcga ttaatctgag tttttctgat 1980
taacagatgg ttgaaaagcc gtataaatgc cctgagtgtg gtaaaagttt tagtgaccca 2040
gggaatcttg tgagacacca gaggactcat acgggggaaa aaccttataa gtgtccagag 2100
tgtggcaaaa gcttctccac gagcggcaac ctggtgaggc accaaaggac gcatacaggt 2160
gaaaagccct ataaatgccc agagtgtggt aagagtttta gcgatcccgg taatctagtg 2220
agacatcaga gaacacacac tggtgaaaaa ccatacaaat gccccgaatg cgggaagtct 2280
ttttcaacaa gtgggaactt ggtccgacat cagcgtacac acacaggcga gaaaccttat 2340
aagtgtccgg agtgtggtaa atcatttagc acttccggaa acttggtacg tcatcagcga 2400
acacacaccg gggagaaacc gtacaaatgc ccggaatgcg gaaaatcatt ctccgatcca 2460
ggcaatttag taagacatca gcgaacccat acaggtaacc gcgccaagct tggtaccgac 2520
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aaaaaagcag gctccgcggc cgcccccttc accatgggat ccctgcccac ctgcagctgt 2700
cttgatcgag ttatacaaaa agacaaaggc ccatattata cacaccttgg ggcaggacca 2760
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aggatagaaa tagtagtgta caccggtaaa gaagggaaaa gctctcatgg gtgtccaatt 2880
gctaagtggg ttttaagaag aagcagtgat gaagaaaaag ttctttgttt ggtccggcag 2940
cgtacaggcc accactgtcc aactgctgtg atggtggtgc tcatcatggt gtgggatggc 3000
atccctcttc caatggccga ccggctatac acagagctca cagagaatct aaagtcatac 3060

aatgggcacc ctaccgacag aagatgcacc ctcaatgaaa atcgtacctg tacatgtcaa 3120
ggaattgatc cagagacttg tggagcttca ttctcttttg gctgttcatg gagtatgtac 3180
tttaatggct gtaagtttgg tagaagccca agccccagaa gatttagaat tgatccaagc 3240
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gtttgtacct taactcgaga agataaccgc tctttgggtg ttattcctca agatgagcag 3540
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tctccaggct tctcctggtc cccgaagact gcttcagcca caccagctcc actgaagaat 4020
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gagaaattgc cccacattga tgagtattgg tcagacagtg agcacatctt tttggatgca 4440
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cgagagctgc acgctaccac tcctgttgag caccccaacc gtaatcatcc aacccgcctc 4560
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aagattaagt ttgaggctaa agaagctaag aataagaaaa tgaaggcctc agagcaaaaa 4680
gaccaggcag ctaatgaagg tccagaacag tcctctgaag taaatgaatt gaaccaaatt 4740
ccttctcata aagcattaac attaacccat gacaatgttg tcaccgtgtc cccttatgct 4800
ctcacacacg ttgcggggcc ctataaccat tgggtctgaa agggtgggcg cgccgaccca 4860
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cgcggtggag ctcctaggtg agtctagaga gttaattaag acccgggact agtccctaga 4980
gtcctgcttt aatgagatat gcgagacgcc tatgatcgca tgatatttgc tttcaattct 5040
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caatttactg attgtaccct actacttata tgtacaatat taaaatgaaa acaatatatt 5220
gtgctgaata ggtttatagc gacatctatg atagagcgcc acaataacaa acaattgcgt 5280
tttattatta caaatccaat tttaaaaaaa gcggcagaac cggtcaaacc taaaagactg 5340
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gagcggcgaa ctaataacgc tcactgaagg gaactccggt tccccgccgg cgcgcatggg 5460
tgagattcct tgaagttgag tattggccgt ccgctctacc gaaagttacg ggcaccattc 5520
aacccggtcc agcacggcgg ccgggtaacc gacttgctgc cccgagaatt atgcagcatt 5580
tttttggtgt atgtgggccc caaatgaagt gcaggtcaaa ccttgacagt gacgacaaat 5640
cgttgggcgg gtccagggcg aattttgcga cgagct 5676

<210> 155
<211> 510
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 155
atggttgaaa agccgtataa atgccctgag tgtggtaaaa gttttagtga cccagggaat 60
cttgtgagac accagaggac tcatacgggg gaaaaacctt ataagtgtcc agagtgtggc 120
aaaagcttct ccacgagcgg caacctggtg aggcaccaaa ggacgcatac aggtgaaaag 180
ccctataaat gcccagagtg tggtaagagt tttagcgatc ccggtaatct agtgagacat 240
cagagaacac acactggtga aaaaccatac aaatgccccg aatgcgggaa gtctttttca 300
acaagtggga acttggtccg acatcagcgt acacacacag gcgagaaacc ttataagtgt 360
ccggagtgtg gtaaatcatt tagcacttcc ggaaacttgg tacgtcatca gcgaacacac 420
accggggaga aaccgtacaa atgcccggaa tgcggaaaat cattctccga tccaggcaat 480
ttagtaagac atcagcgaac ccatacaggt   510

<210> 156
<211> 950
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 156
Met Val Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
 1   5   10   15
Asp Pro Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
            20   25   30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Asn
        35   40   45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50   55   60
Pro Glu Cys Gly Lys Ser Phe Ser Asp Pro Gly Asn Leu Val Arg His
65   70   75   80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85   90   95
Lys Ser Phe Ser Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His
            100   105   110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115   120   125
Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
    130   135   140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Asp Pro Gly Asn
145   150   155   160
Leu Val Arg His Gln Arg Thr His Thr Gly Asn Arg Ala Lys Leu Gly
                165   170   175
Thr Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp
            180   185   190
Lys Asp Tyr Lys Asp Asp Asp Asp Lys Gly Ser Leu Glu Val Leu Phe
        195   200   205
Gly Ala Pro Ser Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Gly Ser Ala

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    210                 215                 220
Ala Ala Pro Phe Thr Met Gly Ser Leu Pro Thr Cys Ser Cys Leu Asp
225                 230                 235                 240
Arg Val Ile Gln Lys Asp Lys Gly Pro Tyr Tyr Thr His Leu Gly Ala
                245                 250                 255
Gly Pro Ser Val Ala Ala Val Arg Glu Ile Met Glu Asn Arg Tyr Gly
            260                 265                 270
Gln Lys Gly Asn Ala Ile Arg Ile Glu Ile Val Val Tyr Thr Gly Lys
        275                 280                 285
Glu Gly Lys Ser Ser His Gly Cys Pro Ile Ala Lys Trp Val Leu Arg
    290                 295                 300
Arg Ser Ser Asp Glu Glu Lys Val Leu Cys Leu Val Arg Gln Arg Thr
305                 310                 315                 320
Gly His His Cys Pro Thr Ala Val Met Val Val Leu Ile Met Val Trp
                325                 330                 335
Asp Gly Ile Pro Leu Pro Met Ala Asp Arg Leu Tyr Thr Glu Leu Thr
            340                 345                 350
Glu Asn Leu Lys Ser Tyr Asn Gly His Pro Thr Asp Arg Arg Cys Thr
        355                 360                 365
Leu Asn Glu Asn Arg Thr Cys Thr Cys Gln Gly Ile Asp Pro Glu Thr
    370                 375                 380
Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Phe Asn
385                 390                 395                 400
Gly Cys Lys Phe Gly Arg Ser Pro Ser Pro Arg Arg Phe Arg Ile Asp
                405                 410                 415
Pro Ser Ser Pro Leu His Glu Lys Asn Leu Glu Asp Asn Leu Gln Ser
            420                 425                 430
Leu Ala Thr Arg Leu Ala Pro Ile Tyr Lys Gln Tyr Ala Pro Val Ala
        435                 440                 445
Tyr Gln Asn Gln Val Glu Tyr Glu Asn Val Ala Arg Glu Cys Arg Leu
    450                 455                 460
Gly Ser Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
465                 470                 475                 480
Phe Cys Ala His Pro His Arg Asp Ile His Asn Met Asn Asn Gly Ser
                485                 490                 495
Thr Val Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Ser Leu Gly Val
            500                 505                 510
Ile Pro Gln Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Leu Ser
        515                 520                 525
Asp Thr Asp Glu Phe Gly Ser Lys Glu Gly Met Glu Ala Lys Ile Lys
    530                 535                 540
Ser Gly Ala Ile Glu Val Leu Ala Pro Arg Arg Lys Lys Arg Thr Cys
545                 550                 555                 560
Phe Thr Gln Pro Val Pro Arg Ser Gly Lys Lys Arg Ala Ala Met Met
                565                 570                 575
Thr Glu Val Leu Ala His Lys Ile Arg Ala Val Glu Lys Lys Pro Ile
            580                 585                 590
Pro Arg Ile Lys Arg Lys Asn Asn Ser Thr Thr Thr Asn Asn Ser Lys
        595                 600                 605
Pro Ser Ser Leu Pro Thr Leu Gly Ser Asn Thr Glu Thr Val Gln Pro
```

```
    610                 615                 620
Glu Val Lys Ser Glu Thr Glu Pro His Phe Ile Leu Lys Ser Ser Asp
625                 630                 635                 640
Asn Thr Lys Thr Tyr Ser Leu Met Pro Ser Ala Pro His Pro Val Lys
                645                 650                 655
Glu Ala Ser Pro Gly Phe Ser Trp Ser Pro Lys Thr Ala Ser Ala Thr
            660                 665                 670
Pro Ala Pro Leu Lys Asn Asp Ala Thr Ala Ser Cys Gly Phe Ser Glu
        675                 680                 685
Arg Ser Ser Thr Pro His Cys Thr Met Pro Ser Gly Arg Leu Ser Gly
    690                 695                 700
Ala Asn Ala Ala Ala Ala Asp Gly Pro Gly Ile Ser Gln Leu Gly Glu
705                 710                 715                 720
Val Ala Pro Leu Pro Thr Leu Ser Ala Pro Val Met Glu Pro Leu Ile
                725                 730                 735
Asn Ser Glu Pro Ser Thr Gly Val Thr Glu Pro Leu Thr Pro His Gln
            740                 745                 750
Pro Asn His Gln Pro Ser Phe Leu Thr Ser Pro Gln Asp Leu Ala Ser
        755                 760                 765
Ser Pro Met Glu Glu Asp Glu Gln His Ser Glu Ala Asp Glu Pro Pro
    770                 775                 780
Ser Asp Glu Pro Leu Ser Asp Asp Pro Leu Ser Pro Ala Glu Glu Lys
785                 790                 795                 800
Leu Pro His Ile Asp Glu Tyr Trp Ser Asp Ser Glu His Ile Phe Leu
                805                 810                 815
Asp Ala Asn Ile Gly Gly Val Ala Ile Ala Pro Ala His Gly Ser Val
            820                 825                 830
Leu Ile Glu Cys Ala Arg Arg Glu Leu His Ala Thr Thr Pro Val Glu
        835                 840                 845
His Pro Asn Arg Asn His Pro Thr Arg Leu Ser Leu Val Phe Tyr Gln
    850                 855                 860
His Lys Asn Leu Asn Lys Pro Gln His Gly Phe Glu Leu Asn Lys Ile
865                 870                 875                 880
Lys Phe Glu Ala Lys Glu Ala Lys Asn Lys Lys Met Lys Ala Ser Glu
                885                 890                 895
Gln Lys Asp Gln Ala Ala Asn Glu Gly Pro Glu Gln Ser Ser Glu Val
            900                 905                 910
Asn Glu Leu Asn Gln Ile Pro Ser His Lys Ala Leu Thr Leu Thr His
        915                 920                 925
Asp Asn Val Val Thr Val Ser Pro Tyr Ala Leu Thr His Val Ala Gly
    930                 935                 940
Pro Tyr Asn His Trp Val
945                 950
```

<210> 157
<211> 170
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 157
Met Val Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
 1   5   10   15
Asp Pro Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
            20   25   30
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Asn
        35   40   45
Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys
    50   55   60
Pro Glu Cys Gly Lys Ser Phe Ser Asp Pro Gly Asn Leu Val Arg His
65   70   75   80
Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly
                85   90   95
Lys Ser Phe Ser Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His
            100   105   110
Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser
        115   120   125
Thr Ser Gly Asn Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys
    130   135   140
Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Asp Pro Gly Asn
145   150   155   160
Leu Val Arg His Gln Arg Thr His Thr Gly
                165   170

<210> 158
<211> 3530
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 158
agtctagctc aacagagctt ttaacccaaa ttggtacaat agaatacaac tttagatcat 60
aattctcaaa agaaagagat tccttagcta ttctatctgc cactccattt ccttctcggc 120
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<210> 159
<211> 747
<212> DNA

<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 159
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<211> 511
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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Ala Gln Lys Ile Glu Trp His Glu Asp Thr Gly Gly Ser Ser Ile Pro
            20   25   30
Gly Leu Glu Val Leu Phe Gln Gly Pro Leu Glu Pro Tyr Lys Cys Pro
        35   40   45
Glu Cys Gly Lys Ser Phe Ser Gln Ser Gly Asp Leu Arg Arg His Gln
    50   55   60
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
65   70   75   80
Ser Phe Ser Arg Ser Asp His Leu Thr Thr His Gln Arg Thr His Thr
                85   90   95
Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Gln
            100   105   110
Ser Ser Ser Leu Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro
        115   120   125
Tyr Lys Cys Pro Glu Cys Gly Lys Ser Phe Ser Thr Ser Gly Asn Leu
    130   135   140
Val Arg His Gln Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro
145   150   155   160
Glu Cys Gly Lys Ser Phe Ser Gln Arg Ala Asn Leu Arg Ala His Gln

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                165                 170                 175
Arg Thr His Thr Gly Glu Lys Pro Tyr Lys Cys Pro Glu Cys Gly Lys
            180                 185                 190
Ser Phe Ser Arg Ser Asp Lys Leu Thr Glu His Gln Arg Thr His Thr
        195                 200                 205
Gly Leu Glu Asp Tyr Lys Asp Asp Asp Asp Lys Asp Tyr Lys Asp Asp
    210                 215                 220
Asp Asp Lys Asp Tyr Lys Asp Asp Asp Asp Lys Lys Leu Asp Ile Ala
225                 230                 235                 240
Met Gly Gly Ala Pro Ser Tyr Gln Thr Ser Leu Tyr Lys Lys Ala Gly
                245                 250                 255
Ser Ala Ala Ala Pro Phe Thr Leu Asp Pro Leu Pro Ala Ala Ala Ala
            260                 265                 270
Ala Val Ser Lys Gly Glu Glu Leu Phe Thr Gly Val Val Pro Ile Leu
        275                 280                 285
Val Glu Leu Asp Gly Asp Val Asn Gly His Lys Phe Ser Val Ser Gly
    290                 295                 300
Glu Gly Glu Gly Asp Ala Thr Tyr Gly Lys Leu Thr Leu Lys Leu Leu
305                 310                 315                 320
Cys Thr Thr Gly Lys Leu Pro Val Pro Trp Pro Thr Leu Val Thr Thr
                325                 330                 335
Leu Gly Tyr Gly Val Gln Cys Phe Ala Arg Tyr Pro Asp His Met Lys
            340                 345                 350
Gln His Asp Phe Phe Lys Ser Ala Met Pro Glu Gly Tyr Val Gln Glu
        355                 360                 365
Arg Thr Ile Phe Phe Lys Asp Asp Gly Asn Tyr Lys Thr Arg Ala Glu
    370                 375                 380
Val Lys Phe Glu Gly Asp Thr Leu Val Asn Arg Ile Glu Leu Lys Gly
385                 390                 395                 400
Ile Asp Phe Lys Glu Asp Gly Asn Ile Leu Gly His Lys Leu Glu Tyr
                405                 410                 415
Asn Tyr Asn Ser His Asn Val Tyr Ile Thr Ala Asp Lys Gln Lys Asn
            420                 425                 430
Gly Ile Lys Ala Asn Phe Lys Ile Arg His Asn Ile Glu Asp Gly Gly
        435                 440                 445
Val Gln Leu Ala Asp His Tyr Gln Gln Asn Thr Pro Ile Gly Asp Gly
    450                 455                 460
Pro Val Leu Leu Pro Asp Asn His Tyr Leu Ser Tyr Gln Ser Ala Leu
465                 470                 475                 480
Phe Lys Asp Pro Asn Glu Lys Arg Asp His Met Val Leu Leu Glu Phe
                485                 490                 495
Leu Thr Ala Ala Gly Ile Thr Glu Gly Met Asn Glu Leu Tyr Asn
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<210> 161
<211> 248
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 161
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Leu Phe Thr Gly Val Val Pro Ile Leu Val Glu Leu Asp Gly Asp Val
            20   25   30
Asn Gly His Lys Phe Ser Val Ser Gly Glu Gly Glu Gly Asp Ala Thr
        35   40   45
Tyr Gly Lys Leu Thr Leu Lys Leu Leu Cys Thr Thr Gly Lys Leu Pro
    50   55   60
Val Pro Trp Pro Thr Leu Val Thr Thr Leu Gly Tyr Gly Val Gln Cys
65   70   75   80
Phe Ala Arg Tyr Pro Asp His Met Lys Gln His Asp Phe Phe Lys Ser
                85   90   95
Ala Met Pro Glu Gly Tyr Val Gln Glu Arg Thr Ile Phe Phe Lys Asp
            100   105   110
Asp Gly Asn Tyr Lys Thr Arg Ala Glu Val Lys Phe Glu Gly Asp Thr
        115   120   125
Leu Val Asn Arg Ile Glu Leu Lys Gly Ile Asp Phe Lys Glu Asp Gly
    130   135   140
Asn Ile Leu Gly His Lys Leu Glu Tyr Asn Tyr Asn Ser His Asn Val
145   150   155   160
Tyr Ile Thr Ala Asp Lys Gln Lys Asn Gly Ile Lys Ala Asn Phe Lys
                165   170   175
Ile Arg His Asn Ile Glu Asp Gly Gly Val Gln Leu Ala Asp His Tyr
            180   185   190
Gln Gln Asn Thr Pro Ile Gly Asp Gly Pro Val Leu Leu Pro Asp Asn
        195   200   205
His Tyr Leu Ser Tyr Gln Ser Ala Leu Phe Lys Asp Pro Asn Glu Lys
    210   215   220
Arg Asp His Met Val Leu Leu Glu Phe Leu Thr Ala Ala Gly Ile Thr
225   230   235   240
Glu Gly Met Asn Glu Leu Tyr Asn
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<210> 162
<211> 16530
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

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taattcaaca gaaattatat gataatcatc gcaagaccgg caacaggatt caatcttaag 240
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<211> 20
<212> DNA
<213> Artificial Sequence

<220>

<223> Synthetic Construct

<400> 176
aaaactaggc catccatgga 20

<210> 177
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 177
agtgtttcaa tcaaggcgtt tc 22

<210> 178
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 178
cacccaatgg aacaaagtga ac 22

<210> 179
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 179
gtatgagttg cttctccagc aaag 24

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

<220>
<223> Synthetic Construct

<400> 180
gaggatggct gcaacaagtg t 21

<210> 181

<211> 25
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 181
caggcttgct tttggaaagg gtacg 25

<210> 182
<211> 27
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 182
gtgctctctc actcttaacc ataagct 27

<210> 183
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 183
gtatgagttg cttctccagc aaag 24

<210> 184
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 184
gaggatggct gcaacaagtg t 21

<210> 185
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 185
agtgtttcaa tcaaggcgtt tc 22

<210> 186
<211> 22
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 186
cacccaatgg aacaaagtga ac 22

<210> 187
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 187
gtatgagttg cttctccagc aaag 24

<210> 188
<211> 21
<212> DNA
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 188
gaggatggct gcaacaagtg t 21

<210> 189
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> VARIANT
<222> 2
<223> Xaa = Any Amino Acid

<400> 189
His Xaa Asp
 1

<210> 190
<211> 3
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<220>
<221> VARIANT
<222> 2
<223> Xaa = Any Amino Acid

<400> 190
His Xaa Arg
 1

<210> 191
<211> 2002
<212> PRT
<213> Homo sapiens

<400> 191
Met Glu Gln Asp Arg Thr Asn His Val Glu Gly Asn Arg Leu Ser Pro
 1   5   10   15
Phe Leu Ile Pro Ser Pro Pro Ile Cys Gln Thr Glu Pro Leu Ala Thr
            20   25   30
Lys Leu Gln Asn Gly Ser Pro Leu Pro Glu Arg Ala His Pro Glu Val
        35   40   45
Asn Gly Asp Thr Lys Trp His Ser Phe Lys Ser Tyr Tyr Gly Ile Pro
    50   55   60
Cys Met Lys Gly Ser Gln Asn Ser Arg Val Ser Pro Asp Phe Thr Gln
65   70   75   80
Glu Ser Arg Gly Tyr Ser Lys Cys Leu Gln Asn Gly Gly Ile Lys Arg
                85   90   95
Thr Val Ser Glu Pro Ser Leu Ser Gly Leu Leu Gln Ile Lys Lys Leu
            100   105   110
Lys Gln Asp Gln Lys Ala Asn Gly Glu Arg Arg Asn Phe Gly Val Ser
        115   120   125
Gln Glu Arg Asn Pro Gly Glu Ser Ser Gln Pro Asn Val Ser Asp Leu
    130   135   140
Ser Asp Lys Lys Glu Ser Val Ser Ser Val Ala Gln Glu Asn Ala Val
145   150   155   160
Lys Asp Phe Thr Ser Phe Ser Thr His Asn Cys Ser Gly Pro Glu Asn

```
                165                 170                 175
Pro Glu Leu Gln Ile Leu Asn Glu Gln Glu Gly Lys Ser Ala Asn Tyr
            180                 185                 190
His Asp Lys Asn Ile Val Leu Leu Lys Asn Lys Ala Val Leu Met Pro
        195                 200                 205
Asn Gly Ala Thr Val Ser Ala Ser Ser Val Glu His Thr His Gly Glu
    210                 215                 220
Leu Leu Glu Lys Thr Leu Ser Gln Tyr Tyr Pro Asp Cys Val Ser Ile
225                 230                 235                 240
Ala Val Gln Lys Thr Thr Ser His Ile Asn Ala Ile Asn Ser Gln Ala
                245                 250                 255
Thr Asn Glu Leu Ser Cys Glu Ile Thr His Pro Ser His Thr Ser Gly
            260                 265                 270
Gln Ile Asn Ser Ala Gln Thr Ser Asn Ser Glu Leu Pro Pro Lys Pro
        275                 280                 285
Ala Ala Val Val Ser Glu Ala Cys Asp Ala Asp Asp Ala Asp Asn Ala
    290                 295                 300
Ser Lys Leu Ala Ala Met Leu Asn Thr Cys Ser Phe Gln Lys Pro Glu
305                 310                 315                 320
Gln Leu Gln Gln Gln Lys Ser Val Phe Glu Ile Cys Pro Ser Pro Ala
                325                 330                 335
Glu Asn Asn Ile Gln Gly Thr Thr Lys Leu Ala Ser Gly Glu Glu Phe
            340                 345                 350
Cys Ser Gly Ser Ser Ser Asn Leu Gln Ala Pro Gly Gly Ser Ser Glu
        355                 360                 365
Arg Tyr Leu Lys Gln Asn Glu Met Asn Gly Ala Tyr Phe Lys Gln Ser
    370                 375                 380
Ser Val Phe Thr Lys Asp Ser Phe Ser Ala Thr Thr Thr Pro Pro Pro
385                 390                 395                 400
Pro Ser Gln Leu Leu Leu Ser Pro Pro Pro Pro Leu Pro Gln Val Pro
                405                 410                 415
Gln Leu Pro Ser Glu Gly Lys Ser Thr Leu Asn Gly Gly Val Leu Glu
            420                 425                 430
Glu His His His Tyr Pro Asn Gln Ser Asn Thr Thr Leu Leu Arg Glu
        435                 440                 445
Val Lys Ile Glu Gly Lys Pro Glu Ala Pro Pro Ser Gln Ser Pro Asn
    450                 455                 460
Pro Ser Thr His Val Cys Ser Pro Ser Pro Met Leu Ser Glu Arg Pro
465                 470                 475                 480
Gln Asn Asn Cys Val Asn Arg Asn Asp Ile Gln Thr Ala Gly Thr Met
                485                 490                 495
Thr Val Pro Leu Cys Ser Glu Lys Thr Arg Pro Met Ser Glu His Leu
            500                 505                 510
Lys His Asn Pro Pro Ile Phe Gly Ser Ser Gly Glu Leu Gln Asp Asn
        515                 520                 525
Cys Gln Gln Leu Met Arg Asn Lys Glu Gln Glu Ile Leu Lys Gly Arg
    530                 535                 540
Asp Lys Glu Gln Thr Arg Asp Leu Val Pro Pro Thr Gln His Tyr Leu
545                 550                 555                 560
Lys Pro Gly Trp Ile Glu Leu Lys Ala Pro Arg Phe His Gln Ala Glu
```

```
                565                 570                 575
Ser His Leu Lys Arg Asn Glu Ala Ser Leu Pro Ser Ile Leu Gln Tyr
            580                 585                 590
Gln Pro Asn Leu Ser Asn Gln Met Thr Ser Lys Gln Tyr Thr Gly Asn
        595                 600                 605
Ser Asn Met Pro Gly Gly Leu Pro Arg Gln Ala Tyr Thr Gln Lys Thr
    610                 615                 620
Thr Gln Leu Glu His Lys Ser Gln Met Tyr Gln Val Glu Met Asn Gln
625                 630                 635                 640
Gly Gln Ser Gln Gly Thr Val Asp Gln His Leu Gln Phe Gln Lys Pro
                645                 650                 655
Ser His Gln Val His Phe Ser Lys Thr Asp His Leu Pro Lys Ala His
            660                 665                 670
Val Gln Ser Leu Cys Gly Thr Arg Phe His Phe Gln Gln Arg Ala Asp
        675                 680                 685
Ser Gln Thr Glu Lys Leu Met Ser Pro Val Leu Lys Gln His Leu Asn
    690                 695                 700
Gln Gln Ala Ser Glu Thr Glu Pro Phe Ser Asn Ser His Leu Leu Gln
705                 710                 715                 720
His Lys Pro His Lys Gln Ala Ala Gln Thr Gln Pro Ser Gln Ser Ser
                725                 730                 735
His Leu Pro Gln Asn Gln Gln Gln Gln Gln Lys Leu Gln Ile Lys Asn
            740                 745                 750
Lys Glu Glu Ile Leu Gln Thr Phe Pro His Pro Gln Ser Asn Asn Asp
        755                 760                 765
Gln Gln Arg Glu Gly Ser Phe Phe Gly Gln Thr Lys Val Glu Glu Cys
    770                 775                 780
Phe His Gly Glu Asn Gln Tyr Ser Lys Ser Ser Glu Phe Glu Thr His
785                 790                 795                 800
Asn Val Gln Met Gly Leu Glu Glu Val Gln Asn Ile Asn Arg Arg Asn
                805                 810                 815
Ser Pro Tyr Ser Gln Thr Met Lys Ser Ser Ala Cys Lys Ile Gln Val
            820                 825                 830
Ser Cys Ser Asn Asn Thr His Leu Val Ser Glu Asn Lys Glu Gln Thr
        835                 840                 845
Thr His Pro Glu Leu Phe Ala Gly Asn Lys Thr Gln Asn Leu His His
    850                 855                 860
Met Gln Tyr Phe Pro Asn Asn Val Ile Pro Lys Gln Asp Leu Leu His
865                 870                 875                 880
Arg Cys Phe Gln Glu Gln Glu Gln Lys Ser Gln Gln Ala Ser Val Leu
                885                 890                 895
Gln Gly Tyr Lys Asn Arg Asn Gln Asp Met Ser Gly Gln Gln Ala Ala
            900                 905                 910
Gln Leu Ala Gln Gln Arg Tyr Leu Ile His Asn His Ala Asn Val Phe
        915                 920                 925
Pro Val Pro Asp Gln Gly Gly Ser His Thr Gln Thr Pro Pro Gln Lys
    930                 935                 940
Asp Thr Gln Lys His Ala Ala Leu Arg Trp His Leu Leu Gln Lys Gln
945                 950                 955                 960
Glu Gln Gln Gln Thr Gln Gln Pro Gln Thr Glu Ser Cys His Ser Gln
```

```
                965                 970                 975
Met His Arg Pro Ile Lys Val Glu Pro Gly Cys Lys Pro His Ala Cys
            980                 985                 990
Met His Thr Ala Pro Pro Glu Asn Lys Thr Trp Lys Lys Val Thr Lys
        995                 1000                1005
Gln Glu Asn Pro Pro Ala Ser Cys Asp Asn Val Gln Gln Lys Ser Ile
    1010                1015                1020
Ile Glu Thr Met Glu Gln His Leu Lys Gln Phe His Ala Lys Ser Leu
1025                1030                1035                1040
Phe Asp His Lys Ala Leu Thr Leu Lys Ser Gln Lys Gln Val Lys Val
                1045                1050                1055
Glu Met Ser Gly Pro Val Thr Val Leu Thr Arg Gln Thr Thr Ala Ala
            1060                1065                1070
Glu Leu Asp Ser His Thr Pro Ala Leu Glu Gln Gln Thr Thr Ser Ser
        1075                1080                1085
Glu Lys Thr Pro Thr Lys Arg Thr Ala Ala Ser Val Leu Asn Asn Phe
    1090                1095                1100
Ile Glu Ser Pro Ser Lys Leu Leu Asp Thr Pro Ile Lys Asn Leu Leu
1105                1110                1115                1120
Asp Thr Pro Val Lys Thr Gln Tyr Asp Phe Pro Ser Cys Arg Cys Val
                1125                1130                1135
Glu Gln Ile Ile Glu Lys Asp Glu Gly Pro Phe Tyr Thr His Leu Gly
            1140                1145                1150
Ala Gly Pro Asn Val Ala Ala Ile Arg Glu Ile Met Glu Glu Arg Phe
        1155                1160                1165
Gly Gln Lys Gly Lys Ala Ile Arg Ile Glu Arg Val Ile Tyr Thr Gly
    1170                1175                1180
Lys Glu Gly Lys Ser Ser Gln Gly Cys Pro Ile Ala Lys Trp Val Val
1185                1190                1195                1200
Arg Arg Ser Ser Ser Glu Glu Lys Leu Leu Cys Leu Val Arg Glu Arg
                1205                1210                1215
Ala Gly His Thr Cys Glu Ala Ala Val Ile Val Ile Leu Ile Leu Val
            1220                1225                1230
Trp Glu Gly Ile Pro Leu Ser Leu Ala Asp Lys Leu Tyr Ser Glu Leu
        1235                1240                1245
Thr Glu Thr Leu Arg Lys Tyr Gly Thr Leu Thr Asn Arg Arg Cys Ala
    1250                1255                1260
Leu Asn Glu Glu Arg Thr Cys Ala Cys Gln Gly Leu Asp Pro Glu Thr
1265                1270                1275                1280
Cys Gly Ala Ser Phe Ser Phe Gly Cys Ser Trp Ser Met Tyr Tyr Asn
                1285                1290                1295
Gly Cys Lys Phe Ala Arg Ser Lys Ile Pro Arg Lys Phe Lys Leu Leu
            1300                1305                1310
Gly Asp Asp Pro Lys Glu Glu Glu Lys Leu Glu Ser His Leu Gln Asn
        1315                1320                1325
Leu Ser Thr Leu Met Ala Pro Thr Tyr Lys Lys Leu Ala Pro Asp Ala
    1330                1335                1340
Tyr Asn Asn Gln Ile Glu Tyr Glu His Arg Ala Pro Glu Cys Arg Leu
1345                1350                1355                1360
Gly Leu Lys Glu Gly Arg Pro Phe Ser Gly Val Thr Ala Cys Leu Asp
```

```
                1365                1370                1375
Phe Cys Ala His Ala His Arg Asp Leu His Asn Met Gln Asn Gly Ser
            1380                1385                1390
Thr Leu Val Cys Thr Leu Thr Arg Glu Asp Asn Arg Glu Phe Gly Gly
        1395                1400                1405
Lys Pro Glu Asp Glu Gln Leu His Val Leu Pro Leu Tyr Lys Val Ser
    1410                1415                1420
Asp Val Asp Glu Phe Gly Ser Val Glu Ala Gln Glu Glu Lys Lys Arg
1425                1430                1435                1440
Ser Gly Ala Ile Gln Val Leu Ser Ser Phe Arg Arg Lys Val Arg Met
                1445                1450                1455
Leu Ala Glu Pro Val Lys Thr Cys Arg Gln Arg Lys Leu Glu Ala Lys
            1460                1465                1470
Lys Ala Ala Ala Glu Lys Leu Ser Ser Leu Glu Asn Ser Ser Asn Lys
        1475                1480                1485
Asn Glu Lys Glu Lys Ser Ala Pro Ser Arg Thr Lys Gln Thr Glu Asn
    1490                1495                1500
Ala Ser Gln Ala Lys Gln Leu Ala Glu Leu Leu Arg Leu Ser Gly Pro
1505                1510                1515                1520
Val Met Gln Gln Ser Gln Gln Pro Gln Pro Leu Gln Lys Gln Pro Pro
                1525                1530                1535
Gln Pro Gln Gln Gln Gln Arg Pro Gln Gln Gln Gln Pro His His Pro
            1540                1545                1550
Gln Thr Glu Ser Val Asn Ser Tyr Ser Ala Ser Gly Ser Thr Asn Pro
        1555                1560                1565
Tyr Met Arg Arg Pro Asn Pro Val Ser Pro Tyr Pro Asn Ser Ser His
    1570                1575                1580
Thr Ser Asp Ile Tyr Gly Ser Thr Ser Pro Met Asn Phe Tyr Ser Thr
1585                1590                1595                1600
Ser Ser Gln Ala Ala Gly Ser Tyr Leu Asn Ser Ser Asn Pro Met Asn
                1605                1610                1615
Pro Tyr Pro Gly Leu Leu Asn Gln Asn Thr Gln Tyr Pro Ser Tyr Gln
            1620                1625                1630
Cys Asn Gly Asn Leu Ser Val Asp Asn Cys Ser Pro Tyr Leu Gly Ser
        1635                1640                1645
Tyr Ser Pro Gln Ser Gln Pro Met Asp Leu Tyr Arg Tyr Pro Ser Gln
    1650                1655                1660
Asp Pro Leu Ser Lys Leu Ser Leu Pro Pro Ile His Thr Leu Tyr Gln
1665                1670                1675                1680
Pro Arg Phe Gly Asn Ser Gln Ser Phe Thr Ser Lys Tyr Leu Gly Tyr
                1685                1690                1695
Gly Asn Gln Asn Met Gln Gly Asp Gly Phe Ser Ser Cys Thr Ile Arg
            1700                1705                1710
Pro Asn Val His His Val Gly Lys Leu Pro Pro Tyr Pro Thr His Glu
        1715                1720                1725
Met Asp Gly His Phe Met Gly Ala Thr Ser Arg Leu Pro Pro Asn Leu
    1730                1735                1740
Ser Asn Pro Asn Met Asp Tyr Lys Asn Gly Glu His His Ser Pro Ser
1745                1750                1755                1760
His Ile Ile His Asn Tyr Ser Ala Ala Pro Gly Met Phe Asn Ser Ser
```

```
                1765                1770                1775
Leu His Ala Leu His Leu Gln Asn Lys Glu Asn Asp Met Leu Ser His
            1780                1785                1790
Thr Ala Asn Gly Leu Ser Lys Met Leu Pro Ala Leu Asn His Asp Arg
        1795                1800                1805
Thr Ala Cys Val Gln Gly Gly Leu His Lys Leu Ser Asp Ala Asn Gly
    1810                1815                1820
Gln Glu Lys Gln Pro Leu Ala Leu Val Gln Gly Val Ala Ser Gly Ala
1825                1830                1835                1840
Glu Asp Asn Asp Glu Val Trp Ser Asp Ser Glu Gln Ser Phe Leu Asp
                1845                1850                1855
Pro Asp Ile Gly Gly Val Ala Val Ala Pro Thr His Gly Ser Ile Leu
            1860                1865                1870
Ile Glu Cys Ala Lys Arg Glu Leu His Ala Thr Thr Pro Leu Lys Asn
        1875                1880                1885
Pro Asn Arg Asn His Pro Thr Arg Ile Ser Leu Val Phe Tyr Gln His
    1890                1895                1900
Lys Ser Met Asn Glu Pro Lys His Gly Leu Ala Leu Trp Glu Ala Lys
1905                1910                1915                1920
Met Ala Glu Lys Ala Arg Glu Lys Glu Glu Glu Cys Glu Lys Tyr Gly
                1925                1930                1935
Pro Asp Tyr Val Pro Gln Lys Ser His Gly Lys Lys Val Lys Arg Glu
            1940                1945                1950
Pro Ala Glu Pro His Glu Thr Ser Glu Pro Thr Tyr Leu Arg Phe Ile
        1955                1960                1965
Lys Ser Leu Ala Glu Arg Thr Met Ser Val Thr Thr Asp Ser Thr Val
    1970                1975                1980
Thr Thr Ser Pro Tyr Ala Phe Thr Arg Val Thr Gly Pro Tyr Asn Arg
1985                1990                1995                2000
Tyr Ile
```

<210> 192
<211> 873
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 192

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

```
Pro Ile Ala Lys Trp Val Val Arg Arg Ser Ser Ser Glu Glu Lys Leu
65                  70                  75                  80
Leu Cys Leu Val Arg Glu Arg Ala Gly His Thr Cys Glu Ala Ala Val
                85                  90                  95
Ile Val Ile Leu Ile Leu Val Trp Glu Gly Ile Pro Leu Ser Leu Ala
            100                 105                 110
Asp Lys Leu Tyr Ser Glu Leu Thr Glu Thr Leu Arg Lys Tyr Gly Thr
        115                 120                 125
Leu Thr Asn Arg Arg Cys Ala Leu Asn Glu Glu Arg Thr Cys Ala Cys
    130                 135                 140
Gln Gly Leu Asp Pro Glu Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys
145                 150                 155                 160
Ser Trp Ser Met Tyr Tyr Asn Gly Cys Lys Phe Ala Arg Ser Lys Ile
                165                 170                 175
Pro Arg Lys Phe Lys Leu Leu Gly Asp Asp Pro Lys Glu Glu Glu Lys
            180                 185                 190
Leu Glu Ser His Leu Gln Asn Leu Ser Thr Leu Met Ala Pro Thr Tyr
        195                 200                 205
Lys Lys Leu Ala Pro Asp Ala Tyr Asn Asn Gln Ile Glu Tyr Glu His
    210                 215                 220
Arg Ala Pro Glu Cys Arg Leu Gly Leu Lys Glu Gly Arg Pro Phe Ser
225                 230                 235                 240
Gly Val Thr Ala Cys Leu Asp Phe Cys Ala His Ala His Arg Asp Leu
                245                 250                 255
His Asn Met Gln Asn Gly Ser Thr Leu Val Cys Thr Leu Thr Arg Glu
            260                 265                 270
Asp Asn Arg Glu Phe Gly Gly Lys Pro Glu Asp Glu Gln Leu His Val
        275                 280                 285
Leu Pro Leu Tyr Lys Val Ser Asp Val Asp Glu Phe Gly Ser Val Glu
    290                 295                 300
Ala Gln Glu Glu Lys Lys Arg Ser Gly Ala Ile Gln Val Leu Ser Ser
305                 310                 315                 320
Phe Arg Arg Lys Val Arg Met Leu Ala Glu Pro Val Lys Thr Cys Arg
                325                 330                 335
Gln Arg Lys Leu Glu Ala Lys Lys Ala Ala Ala Glu Lys Leu Ser Ser
            340                 345                 350
Leu Glu Asn Ser Ser Asn Lys Asn Glu Lys Glu Lys Ser Ala Pro Ser
        355                 360                 365
Arg Thr Lys Gln Thr Glu Asn Ala Ser Gln Ala Lys Gln Leu Ala Glu
    370                 375                 380
Leu Leu Arg Leu Ser Gly Pro Val Met Gln Gln Ser Gln Gln Pro Gln
385                 390                 395                 400
Pro Leu Gln Lys Gln Pro Pro Gln Pro Gln Gln Gln Gln Arg Pro Gln
                405                 410                 415
Gln Gln Gln Pro His His Pro Gln Thr Glu Ser Val Asn Ser Tyr Ser
            420                 425                 430
Ala Ser Gly Ser Thr Asn Pro Tyr Met Arg Arg Pro Asn Pro Val Ser
        435                 440                 445
Pro Tyr Pro Asn Ser Ser His Thr Ser Asp Ile Tyr Gly Ser Thr Ser
    450                 455                 460
```

```
Pro Met Asn Phe Tyr Ser Thr Ser Ser Gln Ala Ala Gly Ser Tyr Leu
465                 470                 475                 480
Asn Ser Ser Asn Pro Met Asn Pro Tyr Pro Gly Leu Leu Asn Gln Asn
                485                 490                 495
Thr Gln Tyr Pro Ser Tyr Gln Cys Asn Gly Asn Leu Ser Val Asp Asn
            500                 505                 510
Cys Ser Pro Tyr Leu Gly Ser Tyr Ser Pro Gln Ser Gln Pro Met Asp
        515                 520                 525
Leu Tyr Arg Tyr Pro Ser Gln Asp Pro Leu Ser Lys Leu Ser Leu Pro
    530                 535                 540
Pro Ile His Thr Leu Tyr Gln Pro Arg Phe Gly Asn Ser Gln Ser Phe
545                 550                 555                 560
Thr Ser Lys Tyr Leu Gly Tyr Gly Asn Gln Asn Met Gln Gly Asp Gly
                565                 570                 575
Phe Ser Ser Cys Thr Ile Arg Pro Asn Val His His Val Gly Lys Leu
            580                 585                 590
Pro Pro Tyr Pro Thr His Glu Met Asp Gly His Phe Met Gly Ala Thr
        595                 600                 605
Ser Arg Leu Pro Pro Asn Leu Ser Asn Pro Asn Met Asp Tyr Lys Asn
    610                 615                 620
Gly Glu His His Ser Pro Ser His Ile Ile His Asn Tyr Ser Ala Ala
625                 630                 635                 640
Pro Gly Met Phe Asn Ser Ser Leu His Ala Leu His Leu Gln Asn Lys
                645                 650                 655
Glu Asn Asp Met Leu Ser His Thr Ala Asn Gly Leu Ser Lys Met Leu
            660                 665                 670
Pro Ala Leu Asn His Asp Arg Thr Ala Cys Val Gln Gly Gly Leu His
        675                 680                 685
Lys Leu Ser Asp Ala Asn Gly Gln Glu Lys Gln Pro Leu Ala Leu Val
    690                 695                 700
Gln Gly Val Ala Ser Gly Ala Glu Asp Asn Asp Glu Val Trp Ser Asp
705                 710                 715                 720
Ser Glu Gln Ser Phe Leu Asp Pro Asp Ile Gly Gly Val Ala Val Ala
                725                 730                 735
Pro Thr His Gly Ser Ile Leu Ile Glu Cys Ala Lys Arg Glu Leu His
            740                 745                 750
Ala Thr Thr Pro Leu Lys Asn Pro Asn Arg Asn His Pro Thr Arg Ile
        755                 760                 765
Ser Leu Val Phe Tyr Gln His Lys Ser Met Asn Glu Pro Lys His Gly
    770                 775                 780
Leu Ala Leu Trp Glu Ala Lys Met Ala Glu Lys Ala Arg Glu Lys Glu
785                 790                 795                 800
Glu Glu Cys Glu Lys Tyr Gly Pro Asp Tyr Val Pro Gln Lys Ser His
                805                 810                 815
Gly Lys Lys Val Lys Arg Glu Pro Ala Glu Pro His Glu Thr Ser Glu
            820                 825                 830
Pro Thr Tyr Leu Arg Phe Ile Lys Ser Leu Ala Glu Arg Thr Met Ser
        835                 840                 845
Val Thr Thr Asp Ser Thr Val Thr Thr Ser Pro Tyr Ala Phe Thr Arg
    850                 855                 860
```

```
Val Thr Gly Pro Tyr Asn Arg Tyr Ile
865                 870


<210> 193
<211> 1660
<212> PRT
<213> Homo sapiens

<400> 193
Met Asp Ser Gly Pro Val Tyr His Gly Asp Ser Arg Gln Leu Ser Ala
 1               5                  10                  15
Ser Gly Val Pro Val Asn Gly Ala Arg Glu Pro Ala Gly Pro Ser Leu
            20                  25                  30
Leu Gly Thr Gly Gly Pro Trp Arg Val Asp Gln Lys Pro Asp Trp Glu
        35                  40                  45
Ala Ala Pro Gly Pro Ala His Thr Ala Arg Leu Glu Asp Ala His Asp
    50                  55                  60
Leu Val Ala Phe Ser Ala Val Ala Glu Ala Val Ser Ser Tyr Gly Ala
65                  70                  75                  80
Leu Ser Thr Arg Leu Tyr Glu Thr Phe Asn Arg Glu Met Ser Arg Glu
                85                  90                  95
Ala Gly Asn Asn Ser Arg Gly Pro Arg Pro Gly Pro Glu Gly Cys Ser
            100                 105                 110
Ala Gly Ser Glu Asp Leu Asp Thr Leu Gln Thr Ala Leu Ala Leu Ala
        115                 120                 125
Arg His Gly Met Lys Pro Pro Asn Cys Asn Cys Asp Gly Pro Glu Cys
    130                 135                 140
Pro Asp Tyr Leu Glu Trp Leu Glu Gly Lys Ile Lys Ser Val Val Met
145                 150                 155                 160
Glu Gly Gly Glu Glu Arg Pro Arg Leu Pro Gly Pro Leu Pro Pro Gly
                165                 170                 175
Glu Ala Gly Leu Pro Ala Pro Ser Thr Arg Pro Leu Leu Ser Ser Glu
            180                 185                 190
Val Pro Gln Ile Ser Pro Gln Glu Gly Leu Pro Leu Ser Gln Ser Ala
        195                 200                 205
Leu Ser Ile Ala Lys Glu Lys Asn Ile Ser Leu Gln Thr Ala Ile Ala
    210                 215                 220
Ile Glu Ala Leu Thr Gln Leu Ser Ser Ala Leu Pro Gln Pro Ser His
225                 230                 235                 240
Ser Thr Pro Gln Ala Ser Cys Pro Leu Pro Glu Ala Leu Ser Pro Pro
                245                 250                 255
Ala Pro Phe Arg Ser Pro Gln Ser Tyr Leu Arg Ala Pro Ser Trp Pro
            260                 265                 270
Val Val Pro Pro Glu Glu His Ser Ser Phe Ala Pro Asp Ser Ser Ala
        275                 280                 285
Phe Pro Pro Ala Thr Pro Arg Thr Glu Phe Pro Glu Ala Trp Gly Thr
    290                 295                 300
Asp Thr Pro Pro Ala Thr Pro Arg Ser Ser Trp Pro Met Pro Arg Pro
305                 310                 315                 320
```

```
Ser Pro Asp Pro Met Ala Glu Leu Glu Gln Leu Leu Gly Ser Ala Ser
                325                 330                 335
Asp Tyr Ile Gln Ser Val Phe Lys Arg Pro Glu Ala Leu Pro Thr Lys
            340                 345                 350
Pro Lys Val Lys Val Glu Ala Pro Ser Ser Ser Pro Ala Pro Ala Pro
        355                 360                 365
Ser Pro Val Leu Gln Arg Glu Ala Pro Thr Pro Ser Ser Glu Pro Asp
    370                 375                 380
Thr His Gln Lys Ala Gln Thr Ala Leu Gln Gln His Leu His His Lys
385                 390                 395                 400
Arg Ser Leu Phe Leu Glu Gln Val His Asp Thr Ser Phe Pro Ala Pro
                405                 410                 415
Ser Glu Pro Ser Ala Pro Gly Trp Trp Pro Pro Pro Ser Ser Pro Val
            420                 425                 430
Pro Arg Leu Pro Asp Arg Pro Pro Lys Glu Lys Lys Lys Lys Leu Pro
        435                 440                 445
Thr Pro Ala Gly Gly Pro Val Gly Thr Glu Lys Ala Ala Pro Gly Ile
    450                 455                 460
Lys Pro Ser Val Arg Lys Pro Ile Gln Ile Lys Lys Ser Arg Pro Arg
465                 470                 475                 480
Glu Ala Gln Pro Leu Phe Pro Pro Val Arg Gln Ile Val Leu Glu Gly
                485                 490                 495
Leu Arg Ser Pro Ala Ser Gln Glu Val Gln Ala His Pro Pro Ala Pro
            500                 505                 510
Leu Pro Ala Ser Gln Gly Ser Ala Val Pro Leu Pro Pro Glu Pro Ser
        515                 520                 525
Leu Ala Leu Phe Ala Pro Ser Pro Ser Arg Asp Ser Leu Leu Pro Pro
    530                 535                 540
Thr Gln Glu Met Arg Ser Pro Ser Pro Met Thr Ala Leu Gln Pro Gly
545                 550                 555                 560
Ser Thr Gly Pro Leu Pro Pro Ala Asp Asp Lys Leu Glu Glu Leu Ile
                565                 570                 575
Arg Gln Phe Glu Ala Glu Phe Gly Asp Ser Phe Gly Leu Pro Gly Pro
            580                 585                 590
Pro Ser Val Pro Ile Gln Asp Pro Glu Asn Gln Gln Thr Cys Leu Pro
        595                 600                 605
Ala Pro Glu Ser Pro Phe Ala Thr Arg Ser Pro Lys Gln Ile Lys Ile
    610                 615                 620
Glu Ser Ser Gly Ala Val Thr Val Leu Ser Thr Thr Cys Phe His Ser
625                 630                 635                 640
Glu Glu Gly Gly Gln Glu Ala Thr Pro Thr Lys Ala Glu Asn Pro Leu
                645                 650                 655
Thr Pro Thr Leu Ser Gly Phe Leu Glu Ser Pro Leu Lys Tyr Leu Asp
            660                 665                 670
Thr Pro Thr Lys Ser Leu Leu Asp Thr Pro Ala Lys Arg Ala Gln Ala
        675                 680                 685
Glu Phe Pro Thr Cys Asp Cys Val Glu Gln Ile Val Glu Lys Asp Glu
    690                 695                 700
Gly Pro Tyr Tyr Thr His Leu Gly Ser Gly Pro Thr Val Ala Ser Ile
705                 710                 715                 720
```

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Arg Glu Leu Met Glu Glu Arg Tyr Gly Glu Lys Gly Lys Ala Ile Arg
                725                 730                 735
Ile Glu Lys Val Ile Tyr Thr Gly Lys Glu Gly Lys Ser Ser Arg Gly
            740                 745                 750
Cys Pro Ile Ala Lys Trp Val Ile Arg Arg His Thr Leu Glu Glu Lys
        755                 760                 765
Leu Leu Cys Leu Val Arg His Arg Ala Gly His His Cys Gln Asn Ala
    770                 775                 780
Val Ile Val Ile Leu Ile Leu Ala Trp Glu Gly Ile Pro Arg Ser Leu
785                 790                 795                 800
Gly Asp Thr Leu Tyr Gln Glu Leu Thr Asp Thr Leu Arg Lys Tyr Gly
                805                 810                 815
Asn Pro Thr Ser Arg Arg Cys Gly Leu Asn Asp Asp Arg Thr Cys Ala
            820                 825                 830
Cys Gln Gly Lys Asp Pro Asn Thr Cys Gly Ala Ser Phe Ser Phe Gly
        835                 840                 845
Cys Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Tyr Ala Arg Ser Lys
    850                 855                 860
Thr Pro Arg Lys Phe Arg Leu Ala Gly Asp Asn Pro Lys Glu Glu Glu
865                 870                 875                 880
Val Leu Arg Lys Ser Phe Gln Asp Leu Ala Thr Glu Val Ala Pro Leu
                885                 890                 895
Tyr Lys Arg Leu Ala Pro Gln Ala Tyr Gln Asn Gln Val Thr Asn Glu
            900                 905                 910
Glu Ile Ala Ile Asp Cys Arg Leu Gly Leu Lys Glu Gly Arg Pro Phe
        915                 920                 925
Ala Gly Val Thr Ala Cys Met Asp Phe Cys Ala His Ala His Lys Asp
    930                 935                 940
Gln His Asn Leu Tyr Asn Gly Cys Thr Val Val Cys Thr Leu Thr Lys
945                 950                 955                 960
Glu Asp Asn Arg Cys Val Gly Lys Ile Pro Glu Asp Glu Gln Leu His
                965                 970                 975
Val Leu Pro Leu Tyr Lys Met Ala Asn Thr Asp Glu Phe Gly Ser Glu
            980                 985                 990
Glu Asn Gln Asn Ala Lys Val Gly Ser Gly Ala Ile Gln Val Leu Thr
        995                 1000                1005
Ala Phe Pro Arg Glu Val Arg Arg Leu Pro Glu Pro Ala Lys Ser Cys
    1010                1015                1020
Arg Gln Arg Gln Leu Glu Ala Arg Lys Ala Ala Ala Glu Lys Lys Lys
1025                1030                1035                1040
Ile Gln Lys Glu Lys Leu Ser Thr Pro Glu Lys Ile Lys Gln Glu Ala
                1045                1050                1055
Leu Glu Leu Ala Gly Ile Thr Ser Asp Pro Gly Leu Ser Leu Lys Gly
            1060                1065                1070
Gly Leu Ser Gln Gln Gly Leu Lys Pro Ser Leu Lys Val Glu Pro Gln
        1075                1080                1085
Asn His Phe Ser Ser Phe Lys Tyr Ser Gly Asn Ala Val Val Glu Ser
    1090                1095                1100
Tyr Ser Val Leu Gly Asn Cys Arg Pro Ser Asp Pro Tyr Ser Met Asn
1105                1110                1115                1120
```

```
Ser Val Tyr Ser Tyr His Ser Tyr Tyr Ala Gln Pro Ser Leu Thr Ser
                1125                1130                1135
Val Asn Gly Phe His Ser Lys Tyr Ala Leu Pro Ser Phe Ser Tyr Tyr
            1140                1145                1150
Gly Phe Pro Ser Ser Asn Pro Val Phe Pro Ser Gln Phe Leu Gly Pro
        1155                1160                1165
Gly Ala Trp Gly His Ser Gly Ser Ser Gly Ser Phe Glu Lys Lys Pro
    1170                1175                1180
Asp Leu His Ala Leu His Asn Ser Leu Ser Pro Ala Tyr Gly Gly Ala
1185                1190                1195                1200
Glu Phe Ala Glu Leu Pro Ser Gln Ala Val Pro Thr Asp Ala His His
                1205                1210                1215
Pro Thr Pro His His Gln Gln Pro Ala Tyr Pro Gly Pro Lys Glu Tyr
            1220                1225                1230
Leu Leu Pro Lys Ala Pro Leu Leu His Ser Val Ser Arg Asp Pro Ser
        1235                1240                1245
Pro Phe Ala Gln Ser Ser Asn Cys Tyr Asn Arg Ser Ile Lys Gln Glu
    1250                1255                1260
Pro Val Asp Pro Leu Thr Gln Ala Glu Pro Val Pro Arg Asp Ala Gly
1265                1270                1275                1280
Lys Met Gly Lys Thr Pro Leu Ser Glu Val Ser Gln Asn Gly Gly Pro
                1285                1290                1295
Ser His Leu Trp Gly Gln Tyr Ser Gly Gly Pro Ser Met Ser Pro Lys
            1300                1305                1310
Arg Thr Asn Gly Val Gly Gly Ser Trp Gly Val Phe Ser Ser Gly Glu
        1315                1320                1325
Ser Pro Ala Ile Val Pro Asp Lys Leu Ser Ser Phe Gly Ala Ser Cys
    1330                1335                1340
Leu Ala Pro Ser His Phe Thr Asp Gly Gln Trp Gly Leu Phe Pro Gly
1345                1350                1355                1360
Glu Gly Gln Gln Ala Ala Ser His Ser Gly Gly Arg Leu Arg Gly Lys
                1365                1370                1375
Pro Trp Ser Pro Cys Lys Phe Gly Asn Ser Thr Ser Ala Leu Ala Gly
            1380                1385                1390
Pro Ser Leu Thr Glu Lys Pro Trp Ala Leu Gly Ala Gly Asp Phe Asn
        1395                1400                1405
Ser Ala Leu Lys Gly Ser Pro Gly Phe Gln Asp Lys Leu Trp Asn Pro
    1410                1415                1420
Met Lys Gly Glu Glu Gly Arg Ile Pro Ala Ala Gly Ala Ser Gln Leu
1425                1430                1435                1440
Asp Arg Ala Trp Gln Ser Phe Gly Leu Pro Leu Gly Ser Ser Glu Lys
                1445                1450                1455
Leu Phe Gly Ala Leu Lys Ser Glu Glu Lys Leu Trp Asp Pro Phe Ser
            1460                1465                1470
Leu Glu Glu Gly Pro Ala Glu Glu Pro Pro Ser Lys Gly Ala Val Lys
        1475                1480                1485
Glu Glu Lys Gly Gly Gly Gly Ala Glu Glu Glu Glu Glu Glu Leu Trp
    1490                1495                1500
Ser Asp Ser Glu His Asn Phe Leu Asp Glu Asn Ile Gly Gly Val Ala
1505                1510                1515                1520
```

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Val Ala Pro Ala His Gly Ser Ile Leu Ile Glu Cys Ala Arg Arg Glu
                1525                1530                1535
Leu His Ala Thr Thr Pro Leu Lys Lys Pro Asn Arg Cys His Pro Thr
            1540                1545                1550
Arg Ile Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Gln Pro Asn
        1555                1560                1565
His Gly Leu Ala Leu Trp Glu Ala Lys Met Lys Gln Leu Ala Glu Arg
    1570                1575                1580
Ala Arg Ala Arg Gln Glu Glu Ala Ala Arg Leu Gly Leu Gly Gln Gln
1585                1590                1595                1600
Glu Ala Lys Leu Tyr Gly Lys Lys Arg Lys Trp Gly Gly Thr Val Val
                1605                1610                1615
Ala Glu Pro Gln Gln Lys Glu Lys Lys Gly Val Val Pro Thr Arg Gln
            1620                1625                1630
Ala Leu Ala Val Pro Thr Asp Ser Ala Val Thr Val Ser Ser Tyr Ala
        1635                1640                1645
Tyr Thr Lys Val Thr Gly Pro Tyr Ser Arg Trp Ile
    1650                1655                1660


<210> 194
<211> 971
<212> PRT
<213> Artificial Sequence

<220>
<223> Synthetic Construct

<400> 194
Phe Pro Thr Cys Asp Cys Val Glu Gln Ile Val Glu Lys Asp Glu Gly
 1               5                  10                  15
Pro Tyr Tyr Thr His Leu Gly Ser Gly Pro Thr Val Ala Ser Ile Arg
            20                  25                  30
Glu Leu Met Glu Glu Arg Tyr Gly Glu Lys Gly Lys Ala Ile Arg Ile
        35                  40                  45
Glu Lys Val Ile Tyr Thr Gly Lys Glu Gly Lys Ser Ser Arg Gly Cys
    50                  55                  60
Pro Ile Ala Lys Trp Val Ile Arg Arg His Thr Leu Glu Glu Lys Leu
65                  70                  75                  80
Leu Cys Leu Val Arg His Arg Ala Gly His His Cys Gln Asn Ala Val
                85                  90                  95
Ile Val Ile Leu Ile Leu Ala Trp Glu Gly Ile Pro Arg Ser Leu Gly
            100                 105                 110
Asp Thr Leu Tyr Gln Glu Leu Thr Asp Thr Leu Arg Lys Tyr Gly Asn
        115                 120                 125
Pro Thr Ser Arg Arg Cys Gly Leu Asn Asp Asp Arg Thr Cys Ala Cys
    130                 135                 140
Gln Gly Lys Asp Pro Asn Thr Cys Gly Ala Ser Phe Ser Phe Gly Cys
145                 150                 155                 160
Ser Trp Ser Met Tyr Phe Asn Gly Cys Lys Tyr Ala Arg Ser Lys Thr
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                165                 170                 175
Pro Arg Lys Phe Arg Leu Ala Gly Asp Asn Pro Lys Glu Glu Glu Val
            180                 185                 190
Leu Arg Lys Ser Phe Gln Asp Leu Ala Thr Glu Val Ala Pro Leu Tyr
        195                 200                 205
Lys Arg Leu Ala Pro Gln Ala Tyr Gln Asn Gln Val Thr Asn Glu Glu
    210                 215                 220
Ile Ala Ile Asp Cys Arg Leu Gly Leu Lys Glu Gly Arg Pro Phe Ala
225                 230                 235                 240
Gly Val Thr Ala Cys Met Asp Phe Cys Ala His Ala His Lys Asp Gln
                245                 250                 255
His Asn Leu Tyr Asn Gly Cys Thr Val Val Cys Thr Leu Thr Lys Glu
            260                 265                 270
Asp Asn Arg Cys Val Gly Lys Ile Pro Glu Asp Glu Gln Leu His Val
        275                 280                 285
Leu Pro Leu Tyr Lys Met Ala Asn Thr Asp Glu Phe Gly Ser Glu Glu
    290                 295                 300
Asn Gln Asn Ala Lys Val Gly Ser Gly Ala Ile Gln Val Leu Thr Ala
305                 310                 315                 320
Phe Pro Arg Glu Val Arg Arg Leu Pro Glu Pro Ala Lys Ser Cys Arg
                325                 330                 335
Gln Arg Gln Leu Glu Ala Arg Lys Ala Ala Ala Glu Lys Lys Lys Ile
            340                 345                 350
Gln Lys Glu Lys Leu Ser Thr Pro Glu Lys Ile Lys Gln Glu Ala Leu
        355                 360                 365
Glu Leu Ala Gly Ile Thr Ser Asp Pro Gly Leu Ser Leu Lys Gly Gly
    370                 375                 380
Leu Ser Gln Gln Gly Leu Lys Pro Ser Leu Lys Val Glu Pro Gln Asn
385                 390                 395                 400
His Phe Ser Ser Phe Lys Tyr Ser Gly Asn Ala Val Val Glu Ser Tyr
                405                 410                 415
Ser Val Leu Gly Asn Cys Arg Pro Ser Asp Pro Tyr Ser Met Asn Ser
            420                 425                 430
Val Tyr Ser Tyr His Ser Tyr Tyr Ala Gln Pro Ser Leu Thr Ser Val
        435                 440                 445
Asn Gly Phe His Ser Lys Tyr Ala Leu Pro Ser Phe Ser Tyr Tyr Gly
    450                 455                 460
Phe Pro Ser Ser Asn Pro Val Phe Pro Ser Gln Phe Leu Gly Pro Gly
465                 470                 475                 480
Ala Trp Gly His Ser Gly Ser Ser Gly Ser Phe Glu Lys Lys Pro Asp
                485                 490                 495
Leu His Ala Leu His Asn Ser Leu Ser Pro Ala Tyr Gly Gly Ala Glu
            500                 505                 510
Phe Ala Glu Leu Pro Ser Gln Ala Val Pro Thr Asp Ala His His Pro
        515                 520                 525
Thr Pro His His Gln Gln Pro Ala Tyr Pro Gly Pro Lys Glu Tyr Leu
    530                 535                 540
Leu Pro Lys Ala Pro Leu Leu His Ser Val Ser Arg Asp Pro Ser Pro
545                 550                 555                 560
Phe Ala Gln Ser Ser Asn Cys Tyr Asn Arg Ser Ile Lys Gln Glu Pro
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                565                 570                 575
Val Asp Pro Leu Thr Gln Ala Glu Pro Val Pro Arg Asp Ala Gly Lys
            580                 585                 590
Met Gly Lys Thr Pro Leu Ser Glu Val Ser Gln Asn Gly Gly Pro Ser
        595                 600                 605
His Leu Trp Gly Gln Tyr Ser Gly Gly Pro Ser Met Ser Pro Lys Arg
    610                 615                 620
Thr Asn Gly Val Gly Gly Ser Trp Gly Val Phe Ser Ser Gly Glu Ser
625                 630                 635                 640
Pro Ala Ile Val Pro Asp Lys Leu Ser Ser Phe Gly Ala Ser Cys Leu
                645                 650                 655
Ala Pro Ser His Phe Thr Asp Gly Gln Trp Gly Leu Phe Pro Gly Glu
            660                 665                 670
Gly Gln Gln Ala Ala Ser His Ser Gly Gly Arg Leu Arg Gly Lys Pro
        675                 680                 685
Trp Ser Pro Cys Lys Phe Gly Asn Ser Thr Ser Ala Leu Ala Gly Pro
    690                 695                 700
Ser Leu Thr Glu Lys Pro Trp Ala Leu Gly Ala Gly Asp Phe Asn Ser
705                 710                 715                 720
Ala Leu Lys Gly Ser Pro Gly Phe Gln Asp Lys Leu Trp Asn Pro Met
                725                 730                 735
Lys Gly Glu Glu Gly Arg Ile Pro Ala Ala Gly Ala Ser Gln Leu Asp
            740                 745                 750
Arg Ala Trp Gln Ser Phe Gly Leu Pro Leu Gly Ser Ser Glu Lys Leu
        755                 760                 765
Phe Gly Ala Leu Lys Ser Glu Glu Lys Leu Trp Asp Pro Phe Ser Leu
    770                 775                 780
Glu Glu Gly Pro Ala Glu Glu Pro Pro Ser Lys Gly Ala Val Lys Glu
785                 790                 795                 800
Glu Lys Gly Gly Gly Gly Ala Glu Glu Glu Glu Glu Glu Leu Trp Ser
                805                 810                 815
Asp Ser Glu His Asn Phe Leu Asp Glu Asn Ile Gly Gly Val Ala Val
            820                 825                 830
Ala Pro Ala His Gly Ser Ile Leu Ile Glu Cys Ala Arg Arg Glu Leu
        835                 840                 845
His Ala Thr Thr Pro Leu Lys Lys Pro Asn Arg Cys His Pro Thr Arg
    850                 855                 860
Ile Ser Leu Val Phe Tyr Gln His Lys Asn Leu Asn Gln Pro Asn His
865                 870                 875                 880
Gly Leu Ala Leu Trp Glu Ala Lys Met Lys Gln Leu Ala Glu Arg Ala
                885                 890                 895
Arg Ala Arg Gln Glu Glu Ala Ala Arg Leu Gly Leu Gly Gln Gln Glu
            900                 905                 910
Ala Lys Leu Tyr Gly Lys Lys Arg Lys Trp Gly Gly Thr Val Val Ala
        915                 920                 925
Glu Pro Gln Gln Lys Glu Lys Lys Gly Val Val Pro Thr Arg Gln Ala
    930                 935                 940
Leu Ala Val Pro Thr Asp Ser Ala Val Thr Val Ser Ser Tyr Ala Tyr
945                 950                 955                 960
Thr Lys Val Thr Gly Pro Tyr Ser Arg Trp Ile
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965 970